# Anglo-American strategic cooperation : the role of carrier aviation in western strategy, 1945-1955

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# ANGLO-AMERICAN STRATEGIC COOPERATION:

# THE ROLE OF CARRIER AVIATION IN WESTERN STRATEGY, 1945-1955

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# ABSTRACT

This thesis examines two, interconnected themes in the history of western strategy during the first postwar decade. First, it analyses the development of carrier aviation as a major element in western strategy between 1945 and 1945 from both the British and American perspectives. After World War II, the aircraft assumed the central role in the fleets of both the Royal Navy and the United States Navy. In their interpretation of postwar strategic and naval policy, both navies designated the carrier as the key component of the naval contribution to national and allied strategic defence. In offensive and defensive warfare, at land on at sea, carrier aviation formed the backbone of the fleet and was to provide the main naval response to any 'cold' or 'hot' war challenges that may arise.

Using a comparative approach to the study of naval history, this thesis examines the formulation of the naval component of national strategy within a technical, operational, bureaucratic and financial context and assesses how each of these factors affected the role of carrier aviation in western strategy as it developed during the early cold war period.

Underlying this assessment is the secondary examination of a less explicit feature of the history of western strategy during this period: the nature and dynamics of Anglo-American strategic cooperation between 1945-1955. Rather than focus on the character of the maritime alliance formed under the North Atlantic Treaty Organisation, this thesis concentrates on the nature of the relationship enjoyed exclusively by British and American naval planners outside of the NATO alliance, both before and after its establishment in 1949.

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# ABBREVIATIONS

| | |
|---|---|
| AEW | Airborne Early Warning |
| ASP | Anti-Submarine Patrol |
| ASW | Anti-Submarine Warfare |
| BJSM | British Joint Staff Mission |
| BPF | British Pacific Fleet |
| BuAer | Bureau of Aeronautics, USN |
| BuShips | Bureau of Ships, USN |
| CAM | Merchant catapult ships |
| CAP | Combat Air Patrol |
| CCS | Combined Chiefs of Staff Committee |
| CNO | Chief of Naval Operations |
| COS | Chiefs of Staff |
| CTG | Carrier Task Group |
| CV | Fleet aircraft carrier |
| CVA | Attack aircraft carrier (US) |
| CVAN | Nuclear-powered attack aircraft carrier (US) |
| CVB | *Midway*-class aircraft carrier (US) |
| CVE | Escort aircraft carrier |
| CVL | Light fleet aircraft carrier |
| CVS | Support aircraft carrier (ASW) |
| FAA | Fleet Air Arm |
| FAE | Front-line Air Establishment |
| FBC | Future Building Committee |
| FSL | First Sea Lord |
| FY | Fiscal Year |
| GSP | Global Strategy Paper |
| JCS | United States Joint Chiefs of Staff |
| JPS | Joint Planning Staff |
| JSSC | Joint Strategic Survey Committee |
| LSO | Landing Signal Officer |
| MAC | Merchant ship aircraft carrier |
| MADC | Maritime Air Defence Committee |
| MOD | Minster of Defence |
| MTP | NATO Medium Term Defence Plan |
| NATO | North Atlantic Treaty Organisation |
| NSC | National Security Council |
| RAE | Royal Aircraft Establishment |
| RAF | Royal Air Force |
| R&D | Research and Development |
| RN | Royal Navy |
| SAC | Strategic Air Command |
| SACEUR | Supreme Allied Commander, Europe |
| SACLANT | Supreme Allied Commander, Atlantic |
| SLOC | Sea Line of Communication |
| UN | United Nations |
| USAF | United States Air Force |
| USN | United States Navy |
| VHF | Very High Frequency |
| VTOL | Vertical Take-Off and Lift |
| WEU | Western European Union |

Note on American and British aircraft carrier designations:

In the United States Navy, the CVB and CVL designations were established within the original CV designation in July 1943. IN the USN, a CVL was a converted or redesigned cruiser hull; in the Royal Navy it was a specially built carrier, smaller than a fleet carrier. CVA replaced CV and CVB in the USN in October 1952 while CVL went out of use in May 1959.

# INTRODUCTION

This thesis examines two, interconnected themes in the history of western strategy during the first postwar decade. First, it analyses the development of carrier aviation as a major element in western strategy between 1945 and 1955 from both the British and American perspectives. After World War II, the aircraft carrier was given the central role in the fleets of both the Royal and United States navies. In their interpretation of postwar strategic and naval policy, both navies designated the carrier as the key component of the naval contribution to national and allied strategic defence. In offensive and defensive warfare, on land and at sea, carrier aviation formed the backbone of the fleet and was to provide the main naval response to any 'cold' or 'hot' war challenges that may arise. Using a comparative approach to the study of naval history, this thesis examines the formulation of the naval component of national strategy within a technical, operational, bureaucratic and financial context and assesses how each of these factors affected the role of carrier aviation in western strategy as it developed during the early cold war period.

Underlying this assessment, however, is the secondary examination of a less explicit feature of the history of western strategy during this period: the nature and dynamics of British and American - as opposed to allied - strategic cooperation between 1945 and 1955. Rather than focus on the character of the maritime alliance formed under NATO - as many previous studies have done - this thesis concentrates on the nature of the relationship enjoyed exclusively by British and American defence planners outside of the NATO alliance, before and after its establishment in 1949. The focus on this issue is largely a corollary of the first theme, which, by providing a detailed, specific analysis of Anglo-American carrier aviation during the early postwar period, also affords an insight into the essential qualities and characteristics of the Anglo-American strategic relationship. The intricacies of the Anglo-American 'special relationship', particularly in

the naval sphere, has thus become a subsidiary focus of this study.

While it is true to say that existing historiography has not wholly neglected either of these themes in its study of western strategy during the early postwar years, it can be argued that neither subject has received as thorough or complete an analysis as is necessary for a comprehensive understanding of this period. Previous studies have, by and large, failed to elucidate the complexity of the history of the development of British and American carrier aviation at this time. In general terms, this has been due to either too limited a methodology being employed or too singular an approach to the subject being adopted. As a result, the scope of many inquiries have been circumscribed at the outset.

This analysis of the development of carrier aviation as a major element in western strategy is distinctive in two ways. First, it adopts a comparative technique, interpreting the development of carrier aviation in Britain between 1945-1955 with direct reference to that in the United States, and vice versa. Second, it deliberately employs a broad-based methodology, which integrates and analyses a number of factors in the examination of the role of the aircraft carrier in western strategy. Both approaches have been intentionally and purposively employed.

In recent years, the state of naval and maritime history has come under increasing scrutiny from many of its practitioners. Much of the concern has focused on the apparent exclusion of naval and maritime history from the mainstream of historical study; on the 'ghettoization of naval history and its characterization as being suitable only for enthusiasts, amateurs and retired naval officers - certainly not academics.'[1]

The problem with naval and maritime history, such as it is, is considered to be two-fold. First, it has been argued by some historians that naval and maritime history is too often analysed only in national terms and using a narrow perspective, when in actual fact,

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1. W.J.R. Gardner, 'The State of Naval History', *The Historical Journal*, vol. 38, no. 3 (1995), 696. See also the collection of essays by naval and maritime historians in John B. Hattendorf (ed.),*UBI SUMUS? The State of Naval and Maritime History* (Newport, Rhode Island: Naval War College Press, 1994).

naval and maritime affairs involve a variety of dynamic interactions across national boundaries and academic disciplines. According to the British naval historian, Nicholas Rodger, for instance, parochialism is the real weakness of naval and maritime history in Britain. 'It is especially, unfortunate,' he says, 'that a subject which by its very nature is an international one, the history of the sea which brings men of different nations together in war and peace, is usually written from a national if not nationalist perspective.'[2]

Second, it is argued that the interest in naval and maritime affairs focuses too much on ships, battles, campaigns or romantic notions of seafaring and ignores or underestimates the broader historical context or connections of naval and maritime subjects with many other areas of historical enquiry. As the American naval historian, John B. Hattendorf, argues, 'in order for the general study of maritime and naval history to reach a higher level, its focus must break out beyond a confined self-contained and self-referenced view to make links with wider events and with trends of broad, general interest.'[3]

What these criticisms seem to suggest is that naval and maritime history deserves and indeed needs to be studied from a broader comparative and internationalist perspective. In 1995, a collection of articles, appropriately entitled *Doing Naval History. Essays Toward Improvement*, was published. It focused on new ideas, issues and themes for naval historians to examine and new methodologies to adopt, in order to achieve 'a new, corrected and amended model' of naval history, one which linked itself more closely to the trends of general history, particularly those issues related to events on land.[4] In one essay, the historians David Rosenberg and Jon Sumida argue the need to study navies not merely as instruments of war, but also as complex human

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2. N.A.M. Rodger, 'Britain', in Hattendorf, *Ubi Sumus?*, 55.
3. John Hattendorf, '*Ubi Sumus*? What is the State of Naval and Maritime History Today?', in Hattendorf (ed.), *Ubi Sumus?*, 5.
4. John Hattendorf (ed.), *Doing Naval History. Essays Toward Improvement* (Newport, Rhode Island: Naval War College Press, 1995), 1.

organizations contingent upon technical, personnel, economic and administrative factors. Most standard naval histories, they argue, are devoid of such analysis, often focusing purely on a study of foreign policy and diplomacy, with the result that the important questions about the relationship between 'machines, men, money, manufacturing and management are not asked.'[5] To the list of factors meriting study could be added technological and operational issues,[6] as well as domestic politics and international relations; in short, any of the numerous 'dimensions of mans relationship with the sea.'[7]

This plea for a more enlightened and broad-based approach to the study of naval history is especially pertinent for the study of the role and development of carrier aviation in western strategy between 1945 and 1955 where, as mentioned earlier, existing historiography has so far generally fallen short in adopting a more integrated and internationalist approach. In the first place, studies of British and American maritime strategy during the first postwar decade are surprisingly few, with a perceivable gap in the literature between those studies which focus on the interwar and wartime years and those which concentrate on the more intensive phase of the cold war period beginning around 1950. The intervening five year period has, to a certain degree, been 'skipped' over and so far has suffered from a peculiar lack of analysis.

This is particularly true in the case of Britain, where studies of postwar naval policy are generally scant. Even Admiral William Crowe's seminal doctoral study on the postwar Royal Navy, 'The Policy Roots of the Modern Royal Navy, 1946-1963', deals with this period in short shrift before moving on to the NATO era.[8] A notable exception

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5. Jon Sumida and David Rosenberg, 'Machines, Men, Manufacturing and Money: The Study of Navies as Complex Organizations and the Transformation of Twentieth Century Naval History', in Hattendorf (ed.), *Doing Naval History*, 26.
6. See the essay by James Goldrick, 'The Problems of Modern Naval History', in the same volume.
7. Hattendorf, *Doing Naval History*, 5.
8. Admiral William James Crowe Jr., 'The Policy Routes of the Modern Royal Navy, 1946-1963', Princeton University, Ph.D. dissertation, 1965.

on the British side is Eric J. Grove's comprehensive study of the evolution of British naval policy after 1945, *Vanguard to Trident. British Naval Policy Since World War II.* Fourteen years after its publication, this work still stands alone in its treatment of this period and also remains unequalled in its efforts to chart the development of British naval policy against the background of domestic politics and economics of the time.[9]

Studies of postwar American naval policy are generally more numerous than those dealing with Britain, but again, many provide only a cursory treatment of the early postwar period. A significant exception is Michael A. Palmer's *Origins of the Maritime Strategy. American Naval Strategy in the First Postwar Decade.*[10] However, this is a relatively short study which has a definite agenda - to chart the origins of the US Navy's strategic concept of the 1970s and 1980s - and thus it has a more selective and less broad-based approach in its analysis of naval affairs. Considerations of domestic politics, economics, technology and operational issues, for example, have generally been skirted over. For the most part, the majority of studies of American naval policy during this period leap ahead from the end of the Second World War to the nuclear era of the 1950s, or focus their attention on the formation of the NATO maritime alliance and the US Navy's role within it .[11]

This last point leads to a further explanation of why a more broad-based approach to the development of carrier aviation in the first postwar decade is so desirable. A common

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9. Eric J. Grove, *Vanguard to Trident. British Naval Policy Since World War II* (London: Bodley Head, 1987). Grove dedicates approximately eighty out of 400 pages to the 1945-1950 period in his book, which deals with a forty year time span.

10. Michael Palmer, *Origins of the Maritime Strategy. The Development of American Naval Strategy, 1945-1955* (originally published as *Origins of the Maritime Strategy: American Naval Strategy in the First Postwar Decade* in 1988 by the Naval Historical Center, Washington D.C.). All citations are from the edition distributed in the UK by Airlife Publishing.

11. See for example, Richard G. Hewlett and Francis Duncan, *Nuclear Navy, 1946-1962* (Chicago: University of Chicago Press, 1974). On the establishment of the NATO alliance, see Robert S. Jordan, *Alliance Strategy and Navies. The Evolution and Scope of NATO's Maritime Dimension* (London: Pinter Publishers, 1990); Joel J. Sokolsky, *Seapower in the Nuclear Age. The United States Navy and NATO, 1949-1980* (London: Routledge, 1991) and Sean M. Maloney, *Securing Command of the Sea. NATO Naval Planning 1948-1954* (Annapolis, M.D.: Naval Institute Press, 1995).

feature of nearly all of these studies is the almost exclusive concentration upon *either* British *or* American naval policy. Very few attempt to analyse naval policy or strategy with a comparative or internationalist perspective and, as has been argued, those that do more often than not confine themselves to an examination of NATO naval planning as it affected only one country.

This has been an unfortunate omission in the historiography of western strategy during the first postwar decade, for the advantages to be gained from adopting a comparative approach are clear. Not only can it be the source of new syntheses and new questions, but also the source of new answers. One of the primary benefits of adopting a comparative approach in studying the development of carrier aviation between 1945 and 1955 is the light it can shed on both the similarities and differences between the British and American navies at this time and the degree to which Britain in particular, depended or relied upon the Americans, not only for financial and operational support but also for moral support.

Indeed, one of the major criticisms that can be levelled at existing studies of British and American carrier aviation after World War II is the single-minded approach that has often been adopted. Most studies of carrier aviation during this period are highly specialised or specific monographs, focusing on just one navy. Reference works on British and American carriers abound, and continued to be produced in considerable numbers, but the majority are little more than a design history of the ships and their aircraft.[12] A mass of technical minutiae is offered for the readers digestion, but at the cost of any overarching strategic evaluation and thus hold little interest for the serious scholar.

In recent years, the history of carrier aviation, in both Britain and the United States, has largely become the preserve of one particular historian. The American, Norman

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12. One of the better reference-type studies available is David Hobbs, *Aircraft Carriers of the Royal and Commonwealth Navies. The Complete Illustrated Encyclopedia from World War I to the Present* (London: Greenhill Books, 1996).

Friedman, has done much to establish the history of carrier aviation as subject worthy of serious academic pursuit. His studies of American carrier aviation - *US Aircraft Carriers. An Illustrated Design History* - and British carrier aviation - *British Carrier Aviation. The Evolution of the Ships and their Aircraft* - remain the most thorough examination of the subject to date.[13] These studies, however, can by no means be considered definitive. In the first place, they deal only rudimentarily with issues of strategy and operations. Friedman's main objective is to chart the technical development of carrier aviation within these countries. Furthermore, little reference is made in either study to the simultaneous development of aircraft carriers in the opposite country. But as this thesis makes clear, the role and development of carrier aviation in Britain and the United States cannot be understood in isolation from one another or without making direct reference to each other.

All of these studies of the development of carrier aviation therefore have their shortcomings. Most significant of these is the underemphasise on the extent to which the two navies worked together in close strategic cooperation, especially in the field of carrier aviation, an omission largely explained by the failure to adopt a comparative approach.

This has been unfortunate, particularly since comparing the manner in which similar military organizations and institutions react to the same military phenomenon - as Thomas Hone, Norman Friedman and Mark Mandeles have done in their study of the development of American and British carrier aviation between 1919-1941 - can 'illuminate the importance of individual action, of organizations and then of the institutional framework within which individuals and organizations act.'[14] Indeed, their study ably demonstrates the advantages to be gleaned from employing a comparative

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13. Norman Friedman, *US Aircraft Carriers. An Illustrated Design History* (London: Arms & Armour, 1983 and Annapolis, M.D.: Naval Institute Press, 1983); Ibid., *British Carrier Aviation. The Evolution of the Ships and Their Aircraft* (London: Conway Maritime Press, 1988).
14. Thomas C. Hone, Norman Friedman and Mark D. Mandeles, *American and British Aircraft Carrier Development 1919-1941* (Annapolis, M.D.: Naval Institute Press, 1999), 6.

approach in understanding how and why navies make decisions, in a way that the study of a single navy often fails to do.

What has also been absent from, or by-passed in, previous studies is an examination of the special relationship enjoyed by British and American defence planners at this time; a relationship that existed anterior to all other commitments and alliances and indeed, as this thesis demonstrates, remained so throughout this period. Numerous studies have been made of the nature of the so-called Anglo-American 'special relationship' in the field of politics and diplomacy, but surprisingly little has been made of this relationship in defence.[15] As indicated above, much of this discussion has been subsumed into examinations of the workings of the NATO alliance. In the naval sphere, only one article, by Eric Grove and Geoffrey Till, makes any attempt to analyse the Anglo-American maritime relationship outside of these parameters.[16]

The second chapter of this thesis charts the coming of age of carrier aviation in the postwar fleets of both the British and American navies. It sets out the new strategic environment within which Britain and the United States found themselves after World War II. It argues that modern navies represent just one component of national military strategy and thus cannot be considered singly or in isolation from the *whole* strategic environment of which they are a part. Accordingly, those factors which were crucial throughout this period in forging the transition from the concept of a national to a western strategy are given careful analysis. The impact of technological development, economic commitments and the vagaries of postwar foreign policy and diplomacy upon

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15. See for example, Robin Edmonds, *Setting the Mould. The United States and Britain, 1945-1950* (Oxford: Clarendon Press, 1986); W.M. Roger Louis and Hedley Bull (eds.), *The 'Special Relationship'. Anglo-American Relations Since 1945* (Oxford: Clarendon Press, 1986); C.J. Bartlett, *'The Special Relationship': A Political History of Anglo-American Relations Since 1945* (London and New York: Longman, 1992). One study that does consider the Anglo-American defence relationship is J. Baylis, 'The Anglo-American Relationship in Defence', in John Baylis (ed.), *British Defence Policy in a Changing World* (London: Croom Helm, 1977).

16. Eric Grove and Geoffrey Till, 'Anglo-American Strategy in the Era of Massive Retaliation, 1945-1960' in J. Hattendorf and R. Jordan, *Maritime Strategy and the Balance of Power. Britain and America in the Twentieth Century* (London: Macmillan, 1989), 271-303.

British and American defence policy in general, and naval affairs in particular, are subjected to close scrutiny.

The next chapter details the political machinery, or the mechanisms devised by British and American military leaders to enable strategic cooperation to continue after the Second World War. Hampered by President Truman's desire to work openly and in concert with other nations through the United Nations Organisation, Anglo-American defence chiefs nonetheless continued to collaborate unofficially and through other channels in their efforts to maintain the unprecedented level of cooperation that had been achieved during the war. Collaboration between the Royal and United States navies also continued and agreements were made, but as this chapter argues, such consonance as was achieved was considerably undermined and limited by the Americans sense of superiority in all things naval. Indeed, the United States Navy view that they had little, if anything, to learn from the Royal Navy, continued until the British were able to demonstrate that they did have a valuable contribution to make in modern naval warfare.

Chapter four outlines the gradual transition in both Britain and America from a national to a western strategy between 1945 and 1950. It demarcates the shift in defence planning and strategic priorities from the requirement to resist future aggression alone, to the recognition that effective defence necessitated the conformity and integration of defence planning with that of the other country. The early postwar naval plans of both countries focused on the need to maintain large, independent fleets, with a role and structure similar to that in World War II. As the strategic realities of the postwar world became clearer - particularly the Soviet Union's expansionist ambitions and the need for fiscal retrenchment - Britain and the United States were drawn together in ever closer strategic cooperation and each became the other's most important postwar ally. It was also during this period, in the joint plans that were devised, that serious consideration was first given to the role aircraft carriers would play in a future war and to the division of responsibility for offensive and defensive operations between the carriers of both navies. Straitened by economic and equipment problems, the Royal Navy was of

necessity consigned to the latter role.

The extent to which British and American carriers were able to cooperate together operationally is examined in the next chapter. During the Korean War, the two navies collaborated closely together in terms of doctrine, tactics, operations and communications and both were able to learn valuable lessons from each other. Indeed, the success with which the carriers of both fleets worked together helped to strengthen the Anglo-American naval relationship and contrasted sharply with the pre-Korean War attitude that any naval contribution Britain could make would be of minimal impact. The triumph of carrier operations in Korea also reinforced and enhanced the relative importance of these ships within both national and western strategy. Furthermore, the war provided impetus to the changes already occurring in naval aircraft and carrier technical development, as well as doctrine, stimulating the production of better jet aircraft and bolstering interest in the development of offensive strike capabilities, particularly within the Royal Navy.

Chapter six examines the nature of Anglo-American strategic cooperation following the establishment of NATO, analysing the extent to which that relationship continued and its influence on the course of NATO naval planning. This chapter also charts the strategic reorientation that took place in both Britain and the United States between 1950 and 1955. In particular, it considers why this change in strategic opinion, away from conventional capabilities and towards reliance on nuclear weapons, occurred sooner in Britain than in America. The repercussions of this reorientation on the role and development of carrier aviation within western strategy is also assessed. In both countries the prevalent political view was that in an atomic and imminently thermonuclear age, there was no requirement for large naval forces, particularly carriers. In the budget cuts that followed the strategic reorientation, the naval forces of both the Royal Navy and the USN came under close scrutiny. In Britain, where the role of carrier aviation in modern warfare remained uncertain, the attacks on carriers by the political opponents of the Royal Navy were particularly powerful and the Royal Navy fought

hard to defend its strategic position.

The final chapter examines some of the major innovations in aircraft carrier design between 1945 and 1955, such as the angled deck, the steam catapult and the mirror landing sight. For the Royal Navy, the importance of postwar carrier modernization lay not only in improving the operational compatibility between the ships and their aircraft but also in achieving closer strategic cooperation with the United States Navy, by encouraging the harmonisation of technical and research and development programmes. For most of this period, however, the USN was generally unwilling to depend on the Royal Navy in any field and believed inherently in the superiority of its own procedure, practice and abilities. The significance of the innovations, developed largely by the British, thus lay equally in demonstrating to the Americans that the Royal Navy did have a significant contribution to make to modern naval warfare as they did in improving the carrier's operational capabilities.

# CHAPTER 2

# FROM WORLD WAR TO COLD WAR: THE NEW STRATEGIC ENVIRONMENT AND ANGLO-AMERICAN RELATIONS, 1945-1946

## I. British and American Carrier Aviation in World War II

In the British and American navies, carrier aviation came of age during World War II. In both navies, the aircraft carrier performed creditably, in more than one theatre of operations and in a multitude of roles: from convoy escort and amphibious operations in the North Atlantic and Europe to air strikes against land targets in the Pacific. Having been ancillary to the battleship, both numerically and doctrinally, in the prewar period, the carrier was by 1945 the main capital ship in both navies.

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In 1939, carrier aviation had been a comparatively weak branch of the Royal Navy (RN).[1] Although the number of carriers built and under construction was impressive and placed the Royal Navy ahead of its principal rivals, the main carriers of both the United States and Japanese navies were significantly larger.[2] As part of the total tonnage allowance placed on aircraft carriers under the 1922 Washington Naval Treaty, the

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1. The best accounts of the development of British carrier aviation before 1939 are Hone, Friedman & Mandeles, *American and British Aircraft Carrier Development 1919-1941*; Friedman, *British Carrier Aviation*; Geoffrey Till, *Air Power and the Royal Navy* (London: Janes, 1979) and Ray Sturtivant, *British Naval Aviation: the Fleet Air Arm 1917-1990* (Annapolis: Naval Institute Press, 1990).

2. In January 1939, the Royal and Commonwealth navies possessed seven carriers, with a further six under construction. In comparison, both the United States Navy and the Imperial Japanese Navy had five built and one building, France had one carrier and Germany had two under construction. Stephen Roskill, *Naval Policy Between the Wars,* vol. II *The Period of Reluctant Rearmament, 1930-1939* (London: Collins, 1976), 577-579.

United States and Japan had each elected to convert two 33,000 ton carriers from cancelled capital ships.[3] Because of the post-World War I halt in capital ship construction, however, Britain had no large battlecrusier hulls available for conversion to large carriers and opted to convert two much smaller ships, the *Glorious* and *Courageous*, as 22,500 ton carriers.[4] The British carriers carried fewer aircraft than the US or Japanese carriers and, crucially for the future, were unable to accommodate the larger, heavier types of naval aircraft that came into service during and after World War II. Indeed, the Royal Navy's postwar efforts to overcome the restrictions on operating new aircraft from existing fleet carriers represents one of the most innovative periods in the history of aircraft carrier development, a theme that is explored in greater depth in chapter six.

At the 1935 London Naval Conference, the future limit for carriers was finally set at 23,000 tons per unit. Britain's last prewar class of carrier - the *Illustrious* class armoured carrier - designed and constructed under treaty limitations was therefore smaller than the United States *Essex* class unarmoured carriers (27,000 tons), constructed after the outbreak of war.[5]

The Fleet Air Arm (FAA) in 1939 operated just 232 low-performance front-line aircraft, limited - by the size of the carriers available to operate them - to strike and

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3. The Washington naval treaty established a ratio of 5:5:3:1.75:1.75 in the total tonnages of capital ships and aircraft carriers between the United States, Great Britain, Japan, France and Italy respectively. The United States and Britain could maintain an aircraft carrier strength of 135,000 tons; Japan of 81,000; and France and Italy of 60,000 each. The United States carriers, the *Lexington* and *Saratoga*, completed in 1927 were actually 36,000 tons while the Japanese carriers, the *Akagi* and *Kaga*, commissioned in 1927-28 displaced nearer 36,500 and 38,200 tons respectively. Roskill, *Naval Policy* vol. II, 26, 46.

4. The total carrier tonnage agreed at Washington was 135,000 tons for Britain and the United States, 81,000 for Japan and 60,000 for Italy and France. In addition, all future carriers were to be limited to 27,000 tons. For a detailed discussion of the Washington Naval Conference see Stephen Roskill, *Naval Policy Between the Wars* vol. I *The Period of Anglo-American Antagonism, 1919-1929* (London: Collins, 1968) chapter VIII.

5. Friedman, *US Aircraft Carriers*, chapter VII.

fighter aircraft, such as the Blackburn Shark or Skua.[6] It has been argued that the Royal Navy's loss of the control of its air arm to the Royal Air Force (RAF) between 1918 and 1937 stripped the navy of much its 'air-mindedness.' Moreover, the precedence of the RAF in the interwar debate between the proponents of the Air Defence of Great Britain strategy and a traditional Main Fleet strategy - of which aircraft carriers were an intrinsic part - meant that carrier aviation also lost out in strategic terms.[7]

In contrast, the battleship - of which there were seventeen built or building in 1939 - remained the dominant weapon in Britain's interwar naval forces. It was the ship against which the Two-Power Standard was measured and the centrepiece of the Admiralty's maritime strategy.[8] However, by the end of World War II, the position had been reversed. With no potential enemy battleships to meet, the aircraft carrier became the Royal Navy's new capital ship. In general terms, this reversal was due to the inadequacy of a Main Fleet doctrine of sea control in a conflict where more than one naval war was being fought, placing an emphasis on greater mobility. But it was the aircraft carrier's performance in the war in particular, demonstrating its strategic importance and utility for a multitude of tasks, including Anti-Submarine Warfare (ASW), convoy protection, close air support for ground troops and attacking enemy ships in harbour and at sea, that was the most crucial factor. While battleships had been deployed in fewer numbers, it had become clear that when confronted by enemy air power, ships could not operate without air cover, be it land- or ship-based air cover. [9]

Some of the more spectacular examples of the many roles British carriers and naval

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6. Fleet Air Arm Official History, Admiralty Papers [ADM] 234/384, [P]ublic [R]ecords [O]ffice, London; Friedman, *British Carrier Aviation*, 203.
7. See Friedman, *British Carrier Aviation*, 8, 18.
8. Roskill, *Naval Policy*, vol. II, 577. On this point, see also J. Sumida, ' "The Best Laid Plans": the Development of British Battlefleet Tactics, 1919-42', *International History Review*, vol. xiv, no. 4 (November 1992): 681-700.
9. J.A. Clements, 'Royal Navy Ship-Based Air Defence, 1939-1984', *Royal United Service Institute Journal*, vol. 129, no. 4 (December 1984), 21.

aircraft played in the exercise of sea power during the war were in the European and Atlantic theatres. In attacking enemy ships at port, none was more successful than the strike on the Italian Fleet at Taranto in November 1940.[10] The fleet carrier, HMS *Illustrious*, supported by Fairey Swordfish torpedo aircraft from HMS *Eagle*, sunk or put out of action three Italian battleships, halving the strength of the Italian Navy in one stroke. In May 1941, Swordfish aircraft were used to cripple the German battleship, the *Bismarck*, at sea. In April 1944, a force of some forty Barracuda bombers and seventy-nine fighters from the fleet carriers *Victorious* and *Furious*, took part in Operation Tungsten, a highly effective air strike that crippled the battleship *Tirpitz*, which was finally destroyed by Bomber Command.[11]

As far as convoy protection was concerned, the largest carrier force yet assembled by the Royal Navy formed part of the fighting escort for the critical 'Pedestal' convoy to the besieged island of Malta in August 1942. The force included the carriers *Victorious*, *Indomitable*, *Furious* and *Eagle*, equipped with Fulmars, Sea Hurricanes and Albacores. In the Atlantic fleet carriers were not needed in the absence of a serious surface and air threat and where the enemy typically sought to avoid decisive battle.[12] Moreover, they were considered to be vulnerable to U-boats.[13] Two new types of aircraft carrier, the British developed but predominantly American-built escort carrier (CVE) and the Merchant Aircraft Carrier (MAC) converted from merchant hulls, were

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10. Details of aircraft carrier deployments during the Second World War can be found in Hobbs, *Aircraft Carriers of the Royal and Commonwealth Navies*. For a more thorough discussion of carrier operations in the Second World War, see David Brown, *Carrier Operations in World War II* (London, 1974) and ibid., *Aircraft Carriers: World War II Fact Files* (London: MacDonald & Janes, 1977).

11. Eric J. Grove, 'A Service Vindicated, 1939-1946' in J.R. Hill (ed.), *The Oxford Illustrated History of the Royal Navy* (Oxford: Oxford University Press, 1995), 372-3.

12. During the Atlantic campaign, the Royal Navy was largely successful in containing the German surface threat and fleet carriers were not needed. An exception to this was the pursuit of the Bismarck in May 1941. Having broken out into the Atlantic with the cruiser Prinz Eugen and destroyed the battlecrusier, HMS Hood, the fleet carrier HMS Victorious and her Swordfish torpedo bombers were used to try and intercept the Bismarck. The Bismarck was eventually crippled by Swordfish from the Gibraltar-based squadron, Force H. Ibid., 357-358.

13. Grove & Till, 'Anglo-American Maritime Strategy in the Era of Massive Retaliation', 281.

therefore deployed in trade protection roles. Thirty-five merchant ships were also turned into catapult (CAM) ships. The CVE's were used to great effect in the Arctic during 1944-45 and formed a vital component of the 'offensive' convoy force, locating and attacking U-boats to enable the convoys to be fought through to their destination.[14] The new escort carriers, many of them supplied by the United States under Lend-Lease, were also used to provide air support for amphibious operations. *Avenger*, *Biter* and *Dasher*, together with four other carriers, formed part of the 160-strong naval task group during Operation 'Torch', the Allied invasion of North Africa in November 1942.[15]

Carrier operations in the Far East were generally less impressive, as indeed was British sea power in the region as a whole. It was partly a problem of logistics that prevented the Royal Navy from fully extending its resources across the Pacific, but once there, the navy found that it was unable to match the level of capability of either its enemy, Japan, or its ally, the United States.[16] Nonetheless, there were some successes. As the naval war in Europe and the Atlantic abated, the East Indies fleet was built up and in April 1944 *Illustrious* took part with USS *Saratoga* in strike operations against Sabang in Sumatra, followed three months later by a solo, four-carrier British effort at Palembang. In March 1945, the newly created British Pacific Fleet (BPF), including six fleet carriers, arrived in the Pacific. Compared to the enormous size of the American fleet, the BPF only equated to the size of a single Task Force, but it took part in Operation 'Iceberg', supporting the US invasion of Okinawa, where its prewar armoured carriers proved better able to survive the Japanese kamikaze attacks than the unarmoured American *Essex* class carriers.

By 1945, the size of the Royal Navy's active carrier force had increased from

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14. The offensive strategic role of convoys in the Arctic is discussed in Andrew Lambert, 'Seizing the Initiative: The Arctic Convoys 1944-45', in N.A.M. Rodger (ed.), *Naval Power in the Twentieth Century* (London: Macmillan, 1996).
15. Grove, 'A Service Vindicated', 368.
16. Ibid., 376.

thirteen in January 1939 to 42 (see figure 2.1). This figure rises to 100 when the number of carriers also under construction is included.[17] The fleet included six fleet carriers of the *Illustrious* class, four *Colossus* class light fleet carriers with a further six building, forty-five US Lend-Lease escort carriers, five British escort carriers, seventeen MAC's and one maintenance carrier.[18] On order were six *Majestic* class light fleet carriers, eight improved *Hermes* class light fleet carriers, three *Audacious* class fleet carriers and three *Malta* class fleet carriers. The front line Fleet Air Arm strength had also increased dramatically, from 232 in September 1939 to 1,336 in April 1945.[19] Of these, 737 were in fact US lend-lease aircraft - British-made aircraft accounted for only forty-five per cent of the overall inventory and substantially less with the British Pacific Fleet - but nonetheless the FAA had more than doubled its own prewar strength.

***Fig. 2.1. Strength of British and American Carrier Aviation in 1939 and 1945***

| | **GREAT BRITAIN** | | **UNITED STATES** | |
|---|---|---|---|---|
| | 1939 | 1945 | 1939 | 1945 |
| **Number of active carriers** | 13 | 42 | 6 | 98 |
| **Number of front-line aircraft** | 232 | 1336 | 1774 | 29,125 |

Source: Carrier Force Levels 1945-1955, Carriers General File NAHB; Friedman, *Postwar Naval Revolution*, 231. US 1945 figures are for VJ Day and do not include ships completed later in the year. British figures are for VE Day and do not reflect the run-down of ASW forces after that date. Nor do they include reserve ships. Ships undergoing major refits and reconstructions have been excluded.

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17. John Simpson & Frank Gregory, 'The Evolution of British Naval Equipment, 1945-1970', in Frank Gregory (ed.), *Perspectives Upon British Defence Policy, 1945-1970* (Southampton: University of Southampton Press, 1974), 217; Friedman, *Postwar Naval Revolution*, 231.
18. No new fleet carriers were built during the war. The *Eagle* and *Ark Royal* (*Audacious* class) fleet carriers were laid during the war but not completed until 1951 and 1955 respectively.
19. FAA Official History, ADM 234/384.

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When America formally entered the Second World War in December 1941, the United States Navy (USN) had just six carriers in service and 3,437 aircraft on hand. Of these, 1,774 were combat types, the remainder being used for training.[20] Although naval rearmament had been stepped up during the 1930s, this had only slowly been followed by the necessary appropriation of funds to allow construction to take place. The 1934 Vinson-Trammell Act, for example, authorized the USN to build up to treaty limits and replace aging ships but Congress did not appropriate the necessary funds until 1938.[21] The navy had also been restricted by treaty for most of the interwar period to a total carrier weight of 135,000 tons of which total the 36,000 ton carriers *Lexington* and *Saratoga* accounted for almost half.

The development of carrier aviation in the United States Navy before World War II had also been restricted by the overwhelming predominance of the battle line concept - and the centrality of the battleship within that concept - in navy war planning and force composition. Throughout the interwar period, naval thinking was dominated by the belief that the engagement between battle fleets would decide the outcome of war. With its big guns, its invulnerability to air attack and its ability to range far and wide, the battleship formed the essential core of this strategy. The carrier, in contrast, was considered too vulnerable to gun and air attack. In a war the carrier was to be relegated to a position several miles away from the battle line where its main duties would be to undertake spotting and reconnaissance missions and generally grind the enemy down with torpedo and bomb attacks in preparation for the decisive gun battle between the

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20. The carriers were the *Lexington* and *Saratoga*, converted from battlecrusier hulls after the 1922 Washington Naval Treaty, *Ranger*, the first purpose-built US carrier, and the large fleet carriers, *Yorktown*, *Enterprise* and *Wasp*. Naval aircraft figures are from Roy A. Grossnick, *United States Naval Aviation 1910-1995* (Washington, D.C.: Naval Historical Center, Department of Navy, 1995), 448.

21. George W. Baer, *One Hundred Years of Sea Power. The U.S. Navy, 1890-1990* (Stanford, CA.: Stanford University Press, 1994), 134.

opposing fleets.[22]

As a number of historians have pointed out, however, this did not mean that the US Navy were unaware of, or failed to consider, the potential role of carriers within the US fleet. Throughout the 1930s, leading naval aviators, such as Rear-Admiral John Towers, the Chief of the Bureau of Aeronautics, advocated the formation of fast carrier task forces operating independently from the battleship.[23] Nonetheless, with a maximum of only three first-line carriers through most of the 1930s, and little evidence to suggest that carriers could defend themselves against enemy aircraft, the battleship - with improved capabilities for firing at very long range and with greater accuracy - remained the preferred investment for the USN's limited funds.[24]

The outbreak of war in Europe in 1939 did little to alter the navy's traditional adherence to the battle line concept. The naval building programme approved in July 1940 following the fall of France, for example, effectively called for the creation of a second battlefleet and an increase in the number of battleships from fifteen to thirty-two. In contrast, the number of carriers was only to be increased to fifteen.[25] The aircraft carrier had yet to prove its offensive value in war and until such time as it did, it was unlikely that many would countenance its role in offensive sea control. As the strategist Bernard Brodie, writing in 1941, argued:

> The carrier...is not likely to replace the battleship...The carrier can strike over a vast range and at the most swiftly moving targets, but she cannot strike with the accuracy and forcefulness that is characteristic of the large naval gun within the

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22. Ibid., 143; Marc Milner, 'Anglo-American Naval Co-operation in the Second World War, 1939-1945', in Hattendorf & Jordan (eds.), *Maritime Strategy and the Balance of Power*, 246.
23. In the summer of 1939, Towers argued before the General Board of the Navy that 'the carriers must be considered, not as individual vessels, but as part of a striking force...such a force would include two carriers, four heavy cruisers and four destroyers.' Quoted in Clark G. Reynolds, *Admiral John H. Towers. The Struggle for Naval Air Supremacy* (Annapolis, M.D.: Naval Institute Press, 1991), 292.
24. Hone, Friedman & Mandeles, *American and British Aircraft Carrier Development*, 55; 58-59.
25. Joel R. Davidson, *The Unsinkable Fleet. The Politics of US Navy Expansion in World War II* (Annapolis, MD.: Naval Institute Press, 1996), 21.

limits of its range.[26]

Nonetheless, by 1945, the aircraft carrier had indeed replaced the battleship as the primary component of the US Navy, both quantatively and qualitatively, and the carrier's aircraft had replaced the big gun as the main offensive weapon of the fleet. This transformation, from ancillary to capital ship, occurred literally overnight, as the Japanese attack at Pearl Harbour on 7 December 1941 effectively crippled the navy's battlefleet. The Pacific Fleet had been rapidly reorganised around the carriers and 'the way to a carrier doctrine of sea control was opened in a day.'[27]

Over the course of the war, carrier aviation also demonstrated its qualitative value in modern naval warfare. This was particularly true in the Pacific campaign, where the carrier came to symbolize the apogee of sea power.[28] Carrier aviation was well suited to the peculiarities of the war in the Pacific. With the enemy garrisoned on a string of island bases throughout the central and southern Pacific, and able to make full use of land-based air power in addition to surface fleets and naval air power, the mobility of the USN carriers and long-range striking power of their aircraft was essential. Moreover, the carriers ability to gain and maintain control not only of the sea, but also the air above it, ensured that the Japanese advance was both stopped and turned back. Attrition, rather than decisive fleet encounters, was the primary characteristic of the Pacific campaign. Indeed, the battles of the Coral Sea and Midway in May and June 1942 were fought solely by carrier aircraft; the surface fleets never laid eyes on each other.

As the Japanese began their retreat in 1942, the carriers also proved vital in the support of amphibious operations, such as the battle for Leyte Gulf, Iwo Jima and

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26. Quoted in Clark G. Reynolds, *The Fast Carriers. The Forging of an Air Navy* (Annapolis, MD.: Naval Institute Press, 1992 edition), 21.
27. Baer, *One Hundred Years*, 143.
28. The following two paragraphs are based on accounts of the Pacific campaign detailed in Baer, *One Hundred Years*, 212-221, 232-258; Milner, 'Anglo-American Naval Cooperation', 258-260; Kenneth J. Hagan, *In Peace and War. Interpretations of American Naval History, 1775-1978* (Westport, CT.: Greenwood Press, 1978), 262-287.

Okinawa during 1944-1945. The establishment of the Fast Carrier Task Force (TF 58) in late 1943, enabled the USN to move freely throughout the central Pacific without first establishing advanced bases and was fundamental in ensuring the success of the American land forces as they gradually 'island-hopped' their way towards the Japanese home islands for the final prosecution of the war.[29]

The carrier ended the war in the ascendent in the US Navy. The dominance of the battle line in naval thinking was well and truly over. Unable to contain the Japanese advance, the battleship was rapidly eclipsed by the carrier. The 1942 naval expansion bill, for example, authorized the construction of 1.9 million tonnes of carriers, cruisers and destroyers but no battleships.[30] Attitudes towards the aircraft carrier had undergone a dramatic volte-face. Writing in June 1944, Bernard Brodie now argued that the carrier 'has won for itself a place in the fleet second to none...[having] struck blows such as no other type of warship could deliver, and...is...the most versatile of combatant craft, both offensively and defensively.'[31]

By 1945, the US Navy was, in the words of the Secretary of the Navy, James Forrestal, 'becoming an air navy.'[32] The number of carriers in service had increased from six to ninety-eight, including eighteen fleet carriers, seventy-two escort carriers and eight light fleet carriers. During the war, a total of twenty-seven *Essex* class fleet carriers and 110 CVE's had been completed, nearly half of the latter served with the Royal Navy under Lend-Lease. The number of aircraft on hand had also increased dramatically, from 3,437 in 1941 to 40,912, including 29,125 combat types (see figure 2.1).[33]

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29. After the war, General Tojo stated that, in addition to US submarine operations against Japanese shipping, the operations of the fast carrier task force and the leapfrogging of bases were the major factors in the defeat of Japan. Reynolds, *Fast Carriers*, 380.

30. Davidson, *Unsinkable Fleet*, 35.

31. Quoted in Reynolds, *Fast Carriers*, 211.

32. Ibid., 391.

33. Figures in Friedman, Postwar Naval Revolution, 231; 'Third and Final Report to Secretary of the Navy, Covering the Period 1 March 1945 to 1 October 1945 - by Admiral Ernest J. King (issued 8 December 1945)' in US Navy at War 1941-1945. *Official Reports to the Secretary of the Navy by Fleet Admiral Ernest J. King, US Navy* (Washington, D.C.: United States Navy Department, 1946),

## II. The Changing Strategic Environment: 1945-46

In recent years, critics of modern naval historiography, such as David Rosenberg and Jon Sumida, have argued, not without some justification, that the history of modern navies is too often centred purely on a study of foreign policy and diplomacy, ignoring such factors as politics and economics and administrative, operational and technical issues.[34]

Such views, however, risk overlooking a fundamental fact about modern navies - that they represent just one component of a nations military strategy and thus cannot be understood in isolation from the whole strategic environment of which they are a part. The concerns of foreign policy and diplomacy cannot be removed from, or understated in, any discussion of British and American postwar naval policy-making, any more than technological, economic or political factors can, without presenting a skewed version of events.

Indeed, all of these factors - foreign policy, diplomatic relations, technology, economics and operational experience - were crucial, not only in forcing Britain and America's transition from a national to a western defence strategy during the first postwar decade, but also in the development of carrier aviation as a major element in Anglo-American strategic cooperation. It has already been noted, for example, how operational experience in the Second World War rendered the aircraft carrier the new capital ship in both the British and American navies. The remainder of this chapter will outline the other salient features of the early postwar strategic environment as they converged, by the mid-1940s, to encourage the transformation of national into western strategy.

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169; Grossnick, *United States Naval Aviation*, 448.

34. David A. Rosenberg, 'Process. The Realities of Formulating Modern Naval Strategy', in James Goldrick & John B. Hattendorf (eds.), *Mahan is not Enough. The Proceedings of a Conference on the Works of Sir Julian Corbett and Admiral Sir Herbert Richmond* (Newport, R.I.: Naval War College Press, 1993), 145; Sumida & Rosenberg, 'Machines, Men, Manufacturing, Management and Money', and Goldrick 'The Problems of Modern Naval History' in Hattendorf (ed.), *Doing Naval History*.

### *Technological Change*

The Second World War witnessed the development of a number of new military technologies which would have a significant effect on the postwar strategic environment. At sea, sonar and radar revolutionized the conduct of naval warfare, while the introduction of homing torpedoes and anti-ship missiles presaged a basic change in the way weapons would be employed and future ships would be designed.[35] Without doubt, the most fundamental technological change for all military services after 1945 was the development of nuclear weapons. With the dropping of the first atomic bomb on Hiroshima on 6 August 1945, followed three days later by a second bomb on Nagasaki, the concept of warfare and strategic thought had changed irrevocably.

As far as naval warfare was concerned, there were many commentators who now doubted whether a maritime strategy was possible with the advent of atomic weapons, or that it was possible to talk seriously about sea power or sea communications at all.[36] Japan's surrender following the dropping of the atomic bombs - delivered by United States Air Force (USAF) B-29's - created the perception that these weapons alone had been responsible for ending the war and would do so again in future wars.[37] Since protracted warfare now seemed less likely, many thought the war would probably be over well before the fleet could be mobilised. In any case, surface ships would be too vulnerable in a nuclear war; an entire carrier task force, for instance, could be wiped out by one atomic bomb.[38] As one commentator in the *Naval Review* concluded, 'the plain

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35. 'The Shape of Things to Come', 28 February, 1945, Admiralty Papers [ADM] 205/51, Public Record Office [PRO], London; Norman Friedman, *The Postwar Naval Revolution* (London: Conway Maritime Press, 1986), 57.

36. See for example Vice-Admiral Sir Peter Gretton, *Maritime Strategy. A Study of British Defence Problems* (London: Cassell, 1965), v.

37. Reynolds, *The Fast Carriers*, 395.

38. David Rosenberg, 'American Postwar Air Doctrine and Organization: the Navy Experience', in Alfred F. Hurley & Robert C. Ehrhart (eds.), Air Power and Warfare. Proceedings of the Eighth Military History Symposium, USAF Academy, 1978 (Washington, D.D.: Office of Air Force History, Headquarters USAF and USAF Academy, 1979), 249.

fact is that all the major navies of the world have been rendered obsolete by the existence of the atomic bomb.'[39]

However, the British Naval Staff were much more reserved in their assessment of the impact of nuclear weapons on strategy. 'Although the development of the atomic bomb may radically alter the conception of war,' wrote Admiral Sir Charles Kennedy-Purvis, the Deputy First Sea Lord, 'the full implications of this new discovery may not be known for some time; its impact on naval operations cannot at present be gauged. For this reason it is considered sound to proceed with our present naval development.'[40] The Admiralty's attitude was to 'wait and see'; to hedge its bets and see how events progressed before committing themselves one way or another. The Admiralty's reaction was not wholly impractical, for Britain did not yet have a delivery system to use atomic weapons, let alone an atomic bomb which would be extremely difficult to produce.[41] Moreover, the Admiralty were keen to retain the fleet that had been amassed by the end of the war and were not yet willing to resign any of it to the breakers yard before the facts about atomic weapons and its implications for a maritime strategy could be properly assessed.

This did not mean that the Admiralty made no attempt to assess the effect of nuclear weapons on the naval aspect of national strategy. Indeed, the first strategic assessment of the atomic bomb was made just nine days after Hiroshima.[42] Various studies of the influence of the atomic bomb were made by the Naval Staff. Most disturbing was that of Captain G. Grantham, Director of Plans, who cooly predicted that in ten years time:

> on a fine Sunday morning or in the middle of a Sunday night, and with no

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39. 'Jellicle', 'Atomic Bomb', *Naval Review*, 1946, 182.
40. Letter from Deputy First Sea Lord to First Sea Lord [FSL], 13 August 1945, ADM 205/51.
41. Admiral William James Crowe, 'The Policy Roots of the Modern Royal Navy, 1946-1963', Ph.D. dissertation, Princeton University, 1965, 90.
42. 'The Atomic Bomb - Its Influence on Naval Warfare and Naval Policy', 15 August 1945, ADM 1/17259. The following two paragraphs are based on this paper.

> warning whatever, it would be possible for 50 aircraft carrying 50 atomic bombs...to arrive simultaneously over England and drop...10 over London, 3 over the Clyde, 3 over the Mersey, 2 on Belfast, the remainder being evenly distributed round the naval bases and other ports and productive centres of England.

In general, however, the Naval Staff argued that the atomic bomb would not, by itself, be strategically decisive. Although the navy might have a role to play in the delivery of atomic weapons, using carriers or submarines, there would still be a need to defend the lines of communication, particularly if Britain's war industry was dispersed throughout the Empire as some suggested. Furthermore, it was possible that a future war might not involve atomic weapons at all, especially in conflicts between small nations, in which case 'a more or less normal navy would play its usual part'.

As historians of the origins of British nuclear strategy have observed, not all of Britain's pre- and wartime strategic concepts were changed as a result of atomic weapons; 'apocalyptic notions of change coexisted freely with strategic lessons of the recent past.'[43] Indeed, the tendency to assume that a future general war and the navy's role in it would be similar to that which had just gone before was reinforced by the Tizard Committee report on 'Future Developments in Weapons and Methods of War' in June 1945.[44] In a future war at sea, the Committee argued, 'the defence of sea communications, and the strength of the Royal Navy, reinforced, but not replaced by aircraft, will remain the supreme necessity.' The report assumed that combined aircraft and submarine attacks on shipping would be similar to that in the last war and placed their faith in the development of carrier-based supersonic fighters to protect the convoys. In the Committee's view, there was just as much need for a surface navy in the future as in the past, with the aircraft carrier responsible for both the protection of trade and for offensive action against enemy fleets.

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43. Ian Clark & Nicholas J. Wheeler, *The British Origins of Nuclear Strategy 1945-55* (Oxford: Clarendon Press, 1989), 18.
44. COS (45) 402 (0), 16 June 1945, Cabinet Papers [CAB] 80/94, PRO.

Although the Committee had been prevented by the Prime Minister, Winston Churchill, from including any evaluation of atomic weapons in its report, the revised version in July 1946, which did take into account the implications of nuclear weapons, still insisted on the importance of maintaining sea lines of communication.[45] While it was conceded that atomic weapons might now be decisive in war, until such time as they were available in quantities which might be critical, there should not be any change in the character of the naval forces. Even when sufficient atomic bombs were available, the report argued that 'whatever changes may be made in the nature of war by these weapons the traditional functions of the navy in securing and exploiting control of sea communications will remain in a war of any length.' The Committee also reaffirmed its belief in the operation of high performance long-range aircraft in the defence of convoys and attached considerable importance to the development of aircraft carriers capable of operating them.

The British Admiralty's initial reaction to the atomic bomb was therefore marked by inaction. It argued that atomic weapons were too limited, expensive and irrelevant to naval warfare to fundamentally alter the Royal Navy's traditional strategic rationale. But should atomic weapons and a nuclear strategy ever be substituted for conventional doctrines and roles, then the Royal Navy could have a role in strategic strike. British maritime strategy in 1945 therefore closely resembled that of the pre-atomic era. The main task of the navy was still the protection of trade and the sea communications with the Empire against submarines and aircraft and the capital ship was still a major threat.[46]

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The views of the United States Joint Chiefs of Staff (JCS) on the impact of the

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45. DO (46) 89 'Future Developments in Weapons and Methods of Warfare', 8 July 1946, CAB 131/3.
46. Report No. 56/45, 'Note on the Postwar Navy in Relation to the Expected Strategic Needs', Director of Operational Research [DOR], 19 February 1945, ADM 219/258.

atomic bomb on warfare and the armed services were very similar to those of the British Admiralty. They recognised that the future development of atomic weapons posed a new, unparalleled threat to the security of continental America demanding that the United States extend its defensive frontiers well into the Pacific, Atlantic and Artic oceans. But the JCS were also keen to dispel the popular belief that the advent of the bomb had rendered obsolete the roles of the ground, air and naval forces as they were then known.[47]

In the first place, the JCS argued, the atomic bomb would, 'for the foreseeable future, be available only to great industrial nations' and 'in any case, the number available [would] be very strictly limited.' Certainly, the Soviet Union did not appear to possess the technological capability to threaten the United States with even conventional long-range weapons, let alone atomic bombs.[48] Although America possessed only two, unassembled, atomic weapons at the end of 1945, rising to nine by the summer of 1946, the JCS estimated that the United States had a head start roughly equivalent to five years technological advantage.[49]

Secondly, although the atomic bomb was primarily a weapon of mass destruction for use against the enemy's war-making capabilities, the bomb was 'not...a tactical weapon suitable for employment against ground forces or naval forces at sea, because they normally offer targets too widely dispersed to justify the use of a weapon of such limited availability and great cost.' Indeed, in an effort to refute the argument that the navy in particular would be too vulnerable in atomic warfare, the US Navy conducted

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47. JCS 1477/1 'Over-all Effect of Atomic Bomb on Warfare and Military Organization', 30 October 1945, MF 9/0039, Records of the JCS, Part II: 1946-63, Atomic Warfare, Liddell Hart Centre for Military Archives [hereafter LHCMA], King's College London. Unless otherwise stated, the following three paragraphs are based on this document.

48. In 1945, the Soviet Union navy was comprised mainly of coastal defence vessels while the air force did not yet have a long-range bombing capability. See John Lewis Gaddis, 'The insecurities of victory: the United States and the perception of the Soviet threat after World War II', in Michael J. Lacey (ed.), *The Truman Presidency* (Cambridge: Woodrow Wilson International Center for Scholars & Cambridge University Press, 1989), 246.

49. David Alan Rosenberg, 'The Origins of Overkill. Nuclear Weapons and American Strategy, 1945-1960', *International Security*, vol. 7 (Spring 1983), 14.

nuclear tests against a 'fleet' at Bikini Atoll in July 1946. The experiment showed that navy task forces could survive an atomic attack if they were more widely dispersed.[50]

While the advent of the atomic bomb did point to considerable changes in the technique of warfare and possible changes in the 'relative importance and strength of the various military components', it did not yet justify eliminating conventional armaments or undertaking major modifications in the services:

> The ground forces will still have to be equipped to attack, occupy and defend territory. The air forces will still have the same roles which they had in this war...The Navy will still have to control the sea, transport and land amphibious forces and furnish air defense and air attacks where shore-based air facilities cannot be made available.

In the immediate postwar period, therefore, both the United States Navy and the JCS as a whole, envisaged a future conflict as running along lines similar to the last war. Early studies pointed to the likelihood of a Soviet ground advance into Western Europe and the importance of maintaining allied naval superiority.[51] The USN's initial evaluations of postwar naval air power also focused on past experiences rather than future missions, celebrating the achievements of carrier air power in destroying enemy ships and aircraft, supporting land operations and reconnaissance. Little thought was given to the question of how the navy might employ atomic weapons. As David Rosenberg has shown, the imperatives of meeting the anticipated Soviet submarine threat, rather than developing an atomic weapons capability, dominated the USN's research and development priorities until 1950.[52]

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50. Rosenberg, 'American Postwar Air Doctrine', 249. The Royal Navy's report on the Bikini Atoll test is contained in the file 'The Tactical Implications of Atomic Attack', ADM 1/23047.
51. See, for example, JIC 332 'Military Capabilities of Britain and France', 16 November 1945, Records of the JCS, Part I: 1942-1945, European Theater, LHCMA.
52. Rosenberg, 'American Postwar Air Doctrine', 247, 250.

## *Economic Change*

Six years of war left Britain nearly bankrupt. Financial reserves totalled only £1,000 million. Over £7,300 million - a quarter of the national wealth - had been spent, including £4,200 million of Britain's foreign assets to pay for supplies abroad. Foreign debts had increased seven-fold; from £476 million in August 1939, to £3,355 million in June 1945.[53] The war effort had been heavily financed by American Lend-Lease and Canadian Mutual Aid; in the last year of the war, for example, £2,000 million was spent overseas although Britain only earned £800 million.[54] By 1945, Britain's economic health was so poor that the economist, Lord Keynes, warned that the country faced a 'financial Dunkirk.'[55] If economic strength was to be restored, it was imperative that exports increase, but these would have to expand by up to seventy-five per cent just to pay for the pre-war level of imports of food and raw materials.[56] However, domestic demand was likely to consume all that British industry could produce, while the services demands for industrial equipment placed a further strain on Britain's ability to export.

The situation had been made much worse in August 1945 by President Truman's sudden cancellation of Lend-Lease. The Treasury had hoped that American economic aid would be maintained for a few months after the end of the war; failing that, a $6 billion interest-free loan was anticipated. In the end, the best that Britain could negotiate was a Financial Agreement of $3.75 billion, at a rate of two per cent interest, to be repaid over fifty years beginning in 1951. The agreement, signed in December 1945, was

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53. Alan Bullock, *Ernest Bevin. Foreign Secretary 1945-51* (Oxford: Oxford University Press, 1985 ed.), 49-50.
54. C.J. Bartlett, *The Long Retreat. A Short History of British Defence Policy, 1945-70* (London: Macmillan, 1972), 9.
55. 'Our Overseas Financial Prospects', 13 August 1945, *Documents on British Policy Overseas* [hereafter *DBPO*], Series I, Volume III (London: HMSO, 1987), 28-37.
56. Bullock, *Bevin*, 50.

supplemented by a Canadian loan, bringing the total sum to $5 billion.[57]

The effect of the economic situation on the British defence establishment was considerable. In the long-term, historians point to the loss of British military power and influence in the postwar period as successive fiscal crises and the need to restore the balance of payments limited Britain's ability to fulfil its defence requirements. This characterization of the 'contraction' of British defence policy due to economic weakness, however, has been refuted by one economic historian, who argues that the provision for defence did not, in fact, change much in the twenty-five years after 1945; it was only Britain's ability to *expand* the defence effort that was restricted.[58] Certainly, the US loan allowed British defence estimates to total £1,736 million in 1946 and there were still a considerable number of postwar military commitments to fulfil, in Germany, Austria, Greece, Malta, Cyprus, Malaya, Singapore, Burma and India to name but a few. As the historian Richard Rosecrance points out, Britain's postwar loss of influence was primarily economic, not strategic, and the need for strategic reorientation was not yet obvious.[59]

Whatever the merits of this argument in the long-term, it would be misjudged to downplay the negative effect of the economic situation on the British defence establishment in the early postwar period. Without doubt, the problem of matching resources with commitments was a major factor in determining the size and composition of Britain's postwar forces. If British defence *policy* did not actually 'contract' after 1945, then the size of the armed *forces* certainly did. Although the reduction in manpower was partly due to inevitable postwar demobilization, it was also a question of

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57. *Financial Agreement Between the Governments of the United States and the United Kingdom*, Cmd 6708 (London: HMSO, 1945).

58. David Greenwood, 'Economic Constraints and British Defence Policy 1945-70', in Gregory, *Perspectives Upon British Defence Policy*, 73.

59. R.N. Rosecrance, *Defense of the Realm. British Strategy in the Nuclear Epoch* (New York & London: Columbia University Press, 1968), 3. On this point also see Robert S. Jordan, 'Introduction: The Balance of Power and the Anglo-American Maritime Relationship' in Hattendorf & Jordan, *Maritime Strategy and the Balance of Power*, 15.

economics. Maintaining large armed forces was very expensive and also placed the armed forces in direct competition with industry's manpower requirements. In 1946, for example, it was estimated that Britain would be nearly one million men short of the minimum required to revive exports and other civilian tasks.[60] In January 1946, manpower in the services was therefore cut from 1.9 million to 1.1 million.[61] The total for the Royal Navy was reduced from 330,000 regular personnel to 175,000, reflecting the Prime Minister's belief that 'it was not necessary in present circumstances to have a large fleet ready for instant action, as there was no-one to fight.'[62] The navy's Estimates for 1946-47 were also cut, from £291 million to £255 million.[63]

The armed forces not only competed with industry for manpower; they were also large consumers of industrial materials, especially metal and engineering products, and as such were impeding British exports. In the Royal Navy, ship and aircraft production programmes were cancelled to give priority to merchant shipping and civilian aircraft and new construction was limited to a few experimental vessels until 1949/50.[64] Admittedly, the Royal Navy had ended the war with more ships than it could man and maintain and the hiatus in new construction would give the Admiralty time to assimilate the lessons of the war.[65] The cuts included two battleships, two destroyer flotillas, one cruiser, twelve submarines and ten escorts but the most drastic cuts were made in the carrier programme.[66] In October 1945, four *Centaur* class light fleet carriers and two *Ark Royal* class fleet carriers from the 1943 programme were cancelled, followed two

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60. DO (46) 1st Meeting, 11 January 1946, CAB 131/1.
61. DO (46) 3rd Meeting, 21 January 1946, CAB 131/1.
62. DO (46) 3rd Meeting, 21 January 1946, CAB 131/1.
63. 'Navy Estimates 1946-1947', Paper B469, 8 July 1946, ADM 167/127.
64. 'The New Construction Programme, 1945', Paper B420, 26 June 1945, ADM 167/124; Board minute 4065, 14 February 1945, ADM 167/126; 'New Construction Programme, 1947/48' Paper B516, 21 May 1947, ADM 167/129.
65. Board minute 4046, 7 November 1945, ADM 167/123.
66. Eric Grove, *Vanguard to Trident. British Naval Policy Since World War II* (London: Bodley Head, 1987), 12-13.

months later by the three new *Malta* class fleet carriers. The active carrier component of the fleet was reduced to six light fleet *Colossus* class ships, with two *Ark Royal*'s, four *Majestic*'s and four *Hermes* class carriers still under construction. The remaining light fleet carriers were either transferred or sold to the Commonwealth or other navies,while the forty-five escort carriers supplied under Lend-Lease were all returned to the United States.[67]

Further cuts were made in 1946. A shortage of money and manpower in the dockyards, especially technical staff, resulted in three of the *Majestic's* being laid up incomplete. All four of the *Hermes* class were delayed and modifications to the design of the two *Ark Royal*'s further pushed back their completion date.[68] In fact, only one new carrier, the light fleet *Bulwark*, was laid down between 1945 and 1955 and it was not until July 1973 that the next carrier, the anti-submarine carrier *Invincible*, was laid down.

Naval aircraft orders were also severely reduced after the war. It had been the Admiralty's intention that by 1948, the navy would possess 800 front-line aircraft, including new Seafire, Firefly, Sea Hornet, Sea Fury and Wyvern fighters and Spearfish and Sturgeon bombers.[69] One of the effects of the cut in the strength of the navy, however, had been to postpone the planned build up of the Fleet Air Arm.[70] The Spearfish, Sturgeon and Seafang were either cancelled or delayed and in the four months between April and September 1945, the size of the front line Fleet Air Arm was

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67. 'New Construction - Suspensions and Cancellations', 16 October 1945, ADM 1/19096; minutes of Sea Lords meeting, 4 December 1945, ADM 205/49. The light fleet carriers cancelled were *Monmouth*, *Polyphemus*, *Hermes* and *Arrogant*. The fleet carriers were *Malta*, *Gibraltar* and *New Zealand*, although it is not clear whether these had been laid down.
68. 'Ark Royal and Audacious - Modernisation', Paper B476, 22 July 1947, ADM 167/127; Grove, *Vanguard to Trident*, 23.
69. 'Future of the Aircraft Industry', August 1944, ADM 1/17395; Friedman, *Postwar Naval Revolution*, 98.
70. DO (46) 20 'Memorandum on the Size of the Armed Forces - 30 June 1946 and 31 December 1946', 13 February 1946, CAB 131/2.

reduced from 1,336 to 959.[71] The FAA was left with few modern combat aircraft and the reductions continued into the next year, reaching a low of 122 operational aircraft in August 1946.[72] Many of the reductions were due to the disposal of US Lend-Lease aircraft - Avengers, Corsairs and Hellcats were mostly ditched into the ocean because they were too expensive to maintain - but the Fleet Air Arm had also been deliberately allowed to run-down while the new generation of strike and jet aircraft were being developed.[73]

The new aircraft, expected to be in service by the late 1940s, had been designed to operate from the *Malta* and *Ark Royal* class fleet carriers, capable of operating 30,000lb aircraft. Now that they had been cancelled or delayed, the irony was that the next generation of naval aircraft were too heavy to be operated from the existing fleet carriers (*Illustrious* and *Implacable*) without extensive modernization. During World War II, the average weight of naval aircraft had more than doubled.[74] The first jet trials on board a carrier in December 1945 also revealed that modifications would have to be made to existing ships if they were to operate the new aircraft. In particular, the new planes required more fuel, longer take-off and landing areas to accommodate their higher speed, and larger lifts and hangars.[75] However, existing carriers were only capable of operating 14,000 lb aircraft and they were generally too small to house the new aircraft (figure 1.2). Modernization of the carriers, in the way of lifts, arrester gear and

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71. FAA Official History, ADM 234/384.
72. Grove, *Vanguard to Trident*, 17.
73. 'Disposal of American Aircraft', ADM 1/15576.
74. In 1938, for example, the Blackburn Skua II fighter weighed 5496 lbs empty. In 1945 the Fairey Firefly F.IV fighter weighed 9859 lbs empty. Similarly, the Fairey Albacore strike aircraft weighed 7250 lbs empty in 1941. The Short Sturgeon, in contrast, weighed 15,410 lbs empty in 1945. Friedman, *British Carrier Aviation*, 369-370; 374.
75. These requirements had been taken into account when the Board were considering the size of the new Malta class, 'Optimum size of the Fleet Carrier', memorandum by the Fifth Sea Lord, 17 January 1945, ADM 205/51.

*Fig. 2.2 Table Showing the New Types of Aircraft that can be Operated by Fleet and Light Fleet Carriers*

| CLASS & NUMBER OF SHIP | Seafire 47 | Sea Fang | Spiteful jet | Firefly IV | Sea Fury | Sea Hornet | Westland Wyvern | Barracuda V | Spearfish | Firebrand IV | Sturgeon | Sea Mosquito |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ILLUSTRIOUS (3) | Yes | Deck park only | ? | Yes | Yes | Deck park only | † | Yes | † | Yes | † | No |
| INDOMITABLE (1) | Yes (lower hangar only | Yes (upper hangar only) | ? | Yes | Yes (lower hangar only) | Yes (upper hangar only) | † | Yes | † | Yes | † | No |
| IMPLACABLE (2) | Deck park only | Yes (upper hangar only) | ? | Yes | Deck park only | Yes (upper hangar only) | Deck park only | Yes | Deck park only | Yes | Deck park only | Yes (upper hangar only) |
| COLOSSUS (14) | Yes | Yes | ? | Yes | Yes | Yes | No | Yes | No | Yes | No | No |
| HERMES (4) | Yes | Yes | ? | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| ARK ROYAL (3) | Yes | Yes | ? | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |

Source: ACNS (A) 27/45 'New Types of Aircraft', Appendix I, 30 December 1945, ADM 205/64.
Note: † could be operated as deck park, provided speed of entry does not exceed 50 knots and weight does not exceed 20,000 lbs. The Spearfish and Sturgeon were later cancelled because no existing carrier could operate them and they would be obsolete by the time the *Hermes* and *Ark Royal* class carriers entered service.

## *Fig. 2.3 Summary of Reasons why Aircraft Cannot be Operated*

### ***FORMIDABLE & VICTORIOUS***

Lifts: 45' x 22', load 14,000 lb.
Arrester Gear: 18,000 at 60 knots
Hangar Height: 16 ft.

Cannot Operate Except as a Deck Park

| | | |
|---|---|---|
| Sea Mosquito | - | Folded width too large |
| Sea Fang | - | Folded width too large |
| Sea Hornet | - | Folded width too large |
| Spearfish | - | Too heavy for lifts |
| Sturgeon | - | Too heavy for lifts |
| Westland | - | Too heavy for lifts |
| Sea Otter | - | Height too great for hangar |

### ***IMPLACABLE*** (2)

Lifts: 45' x 33' (F), 45' x 22' (A) load 20,000 lb
Arrester Gear: 20,000 lb. at 60 knots
Hangars: 14'

Cannot Operate Except as a Deck Park

| | | |
|---|---|---|
| Corsair | - | Too high |
| Sea Otter | - | Too high |
| Spearfish | - | Too high |
| Seafire 47 | - | Too high |
| Sea Fury | - | Too high |
| Sturgeon | - | Too high |
| Westland | - | Too high |

### ***ILLUSTRIOUS***

Lifts: 48' x 22'9", load 20,000 lb.
Arrester Gear: 20,000 lb. at 60 knots
Hangar Height: 16 ft.

Cannot Operate Except as a Deck Park

| | | |
|---|---|---|
| Sea Mosquito | - | Folded width |
| Sea Fang | - | Folded width |
| Sea Hornet | - | Folded width |
| Sturgeon | - | Height too great for hangar |
| Sea Otter | - | Height too great for hangar |
| Spearfish | - | Height too great for hangar |

### ***COLOSSUS*** (8)

Lifts: 45' x 34', load 15,000 lb
Arrester Gear: 15,500 lb.
Hangar Height: 17'6 Hangar Height: 16 ft.

Cannot Operate

| | | |
|---|---|---|
| Sea Mosquito | - | Too heavy for arrester gear |
| Spearfish | - | Too heavy for arrester gear |
| Spearfish | - | Too heavy for arrester gear |
| Westland | - | Too heavy for arrester gear |
| Sea Hornet | - | Too heavy for arrester gear |

### ***INDOMITABLE***

Lifts: 45' x 33' (F), 45' x 22' (A), load 14,000 lb.
Arrester Gear: 18,000 lb. at 60 knots
Hangar Height: (Upper) 14', (Lower) 16'

Cannot Operate Except as a Deck Park

| | | |
|---|---|---|
| Sea Mosquito | - | Too heavy for lifts & too high |
| Spearfish | - | Too heavy for lifts & too high |
| Sturgeon | - | Too high |
| Westland | - | Too heavy for lifts |
| Sea Otter | - | Too high |

Cannot Stow in the Upper Hangar

| | | |
|---|---|---|
| Corsair | - | Too high |
| Seafire 47 | - | Too high |
| Sea Fury | - | Too high |
| Westland | - | Too high |

Cannot Stow in the Lower Hangar

| | | |
|---|---|---|
| Sea Hornet | - | Folded width |
| Sea Fang | - | Folded width |

### ***MAJESTIC*** (6)

As for COLOSSUS unless capacity of arrester gear and lifts are increased while building

### ***HERMES*** (4) & ***ARK ROYAL*** (3)

Can operate all existing and projected aircraft

Source: ACNS (A) 27/45 New Types of Aircraft, Appendix III, 30 December 1945, ADM 205/64

catapults would clearly have to be undertaken with reference to the future trend of aircraft development if they were to have a postwar future (figure 1.3).[76] To this end, a committee under Rear-Admiral RD Oliver was established in October 1946 to investigate the 'Modernization of Existing Fleet Carriers.'[77]

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In striking contrast to Britain, the United States ended World War II in a much better financial position than it had when it entered the war. In almost every respect, Americans were now more prosperous than at any other time in their history. As the historian, Thomas Patterson, observes:

> the United States had emerged from the global conflict in the unique position of an unscathed belligerent. No bombs fell in American cities. No armies ravaged the countryside. No American boundaries were redrawn. Factories stood in place, producing goods at an impressive rate...shiny new Frigidaire refrigerators and airplane propeller blades moved along parallel assembly lines. Farms were rich in crops and full employment during the war years had buoyed family savings. "The American people," remarked the director of the Office of War Mobilization and Reconversion, "are in the pleasant predicament of having to learn to live 50 per cent better than they have ever lived before."[78]

Between 1939 and 1945, the United States gross national product (GNP) expanded from $88.6 billion to $220 billion, industrial expansion increased at the rate of fifteen per cent per annum, manufacturing output doubled and agricultural production increased by fifteen per cent.[79] By the end of the war, the federal budget had increased from $9 billion in

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76. Naval Aircraft Design Sub-Committee of the Future Building Committee, 16th Meeting, 3 December 1945, ADM 116/5977.
77. Minute by Director of Tactical Staff Duties [DTSD], 15 October, 1946, ADM 1/19977.
78. Thomas G. Paterson, 'The Origins of the Postwar International System' in Robert Griffith (ed.), *Major Problems in American History Since 1945* (Lexington, Mass.: D.C Heath & Co., 1992), 10.
79. Paul Kennedy, *The Rise and Fall of the Great Powers. Economic Change and Military Conflict from 1500 to 2000* (London: Fontana Press, 1990 edition), 460; Michael S. Sherry, *In the Shadow of War. The United States Since the 1930s* (New Haven: Yale University Press, 1995), 69; Paterson,

1939 (or nine percent of the GNP) to $98 billion (or forty-six percent of GNP), gold reserves totalled $20 billion, almost two-thirds of the world's total, per capita income had risen from $1,231 to $2,390 and personal savings had increased from $2.6 billion to $29.6 billion.[80]

Spending on the armed forces had also grown exponentially during World War II: from 1.5 percent of the GNP during the 1930s to 13.1 percent in 1941.[81] Service personnel in 1945 totalled 12.5 million. The number of navy personnel had jumped from 312,000 in 1939 to 3,408,347 in 1945.[82] Armaments production increased eight-fold between 1941-1943 and over 300,000 aircraft and 110,000 ships were produced during the war.[83]

With the end of the war, however, public pressure rapidly mounted for such large scale military programmes to be reduced. Between 1939 and 1945, federal taxes had increased from $5 billion to $44.5 billion. The national debt had also increased, from $37 billion to $269 billion, while consumers had faced temporary shortages of goods, such as gasoline, and rationing.[84] Moreover, the public were now anxious to spend their wartime savings on consumer goods that had been in short supply during the war.

As in Britain, the United States thus saw a rapid demobilization of its forces following VJ-Day. From 12.5 million service personnel in June 1945, the armed forces numbered 3 million a year later and 1.5 million in June 1947. Despite the USN's plans for a personnel strength thirty per cent of the wartime figure (just over one million), by mid-1947 manpower in the navy had been reduced to 478,000.[85] Demobilization was also accompanied by cuts in

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'Postwar International System', 12.

80. James T. Patterson, *America in the Twentieth Century. A History* (San Diego: Harcourt Brace Jovanovich, 1989), 278; Kennedy, *Rise and Fall of the Great Powers*, 461; William O'Neill, *American High. The Years of Confidence, 1945-1960* (New York: Free Press, 1989), 1.

81. Sherry, *In the Shadow of War*, 47.

82. Kennedy, *Rise and Fall of the Great Powers*, 461; 'Third and Final Report to the Secretary of the Navy. Covering the Period 1 March 1945 to 1 October 1945', 217.

83. Sherry, *In the Shadow of War*, 69; Paterson, 'Postwar International System', 11; Baer, *One Hundred Years*, 182.

84. Patterson, *America in the Twentieth Century*, 278; Paterson, 'Postwar International System', 11.

85. 'Third and Final Report to the Secretary of the Navy', 217.

ship and aircraft production programmes. In March 1945, the USN had under construction or was planning to build sixteen *Essex* class carriers and thirty-one escort carriers for completion by mid-1947. With the end of the war, and under pressure from President Truman to reduce military spending, the USN agreed to cut, *inter alia*, two carriers and sixteen escort carriers from the current programme.[86] The number of naval aircraft on hand was also reduced, from 40,912 in 1945 to 24,232 in 1946 and 17,602 in 1947.[87]

Although US defence officials complained that the size and pace of the cutbacks threatened the US strategic position and had reduced the fleet to a 'dangerously low point of efficiency,'[88] their baseline for criticism, as Michael Sherry notes, were the enormous wartime forces and not pre-war peacetime levels.[89] A postwar military strength of 1.5 million personnel was still five times larger than during the 1930s, and defence spending, as a proportion of the budget, had increased from fifteen to approximately thirty-three per cent. Thus, in the early postwar period, Sherry argues, 'the United States hardly disarmed...The growth of its military power simply lagged behind an even more striking escalation in the missions its leaders called on it to fill.'[90]

This analysis sounds very much like that which has been applied to early postwar British defence policy. While American defence *policy* did not contract after 1945, the size of the defence *establishment* designed to support it did. Nonetheless, an important caveat needs to be added, for in both relative and absolute terms, the United States ended the Second World War with a much more powerful military establishment, supported by a far stronger economy, than was the case in Britain.

As far as carrier aviation was concerned, the USN did not suffer the same ignominy as

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86. Davidson, *Unsinkable Fleet*, 169, 181. The total building programme was reduced from 258 to 80 ships.
87. Grossnick, *United States Naval Aviation*, 448.
88. John Gaddis, *The United States and the Origins of the Cold War 1941-1947* (New York: Columbia University Press, 1972), 261; Walter Millis (ed.), *The Forrestal Diaries* (New York, Viking Press, 1951), 107.
89. Sherry, *In the Shadow of War*, 130.
90. Ibid., 131.

the British in being unable to operate the next generation of naval aircraft that were beginning to come into service. With the lapse of the interwar naval limitation treaties in 1936, the USN had not been bound, as the British were, to constructing prewar designs when the first wartime production of carriers began in 1940. The new *Essex* class carriers, of which twenty-three were built during or immediately after the war, were thus able to take advantage of the developments made in aircraft design during the early war years and were larger (27,100 tonnes) than treaty-bound classes. Although by 1945 these carriers were considered overcrowded and weight critical, they were nonetheless able, with very little modification, to operate early US naval jets, such as the Grumman F9F Panther.[91] In addition to the *Essex* carriers, the USN had also designed a new, much larger class of carrier, the 45,000 ton *Midway* class, which were beginning to enter service as the war drew to a close. More powerful catapults and a greater fuel capacity meant that jet aircraft, including the future AJ-1 Savage nuclear attack bomber, could be operated without any modifications to these carriers.[92]

It was thus perhaps inevitable that, without the necessary funds or materials to construct a new class of carriers designed to operate the next generation of naval aircraft, the Royal Navy - and not the USN - should be responsible for developing some of the major innovations in postwar carrier aviation enabling modern combat aircraft to be piloted from existing carriers.

### *Foreign Policy and Diplomacy*

The technological and economic changes in the postwar strategic environment did not take place inside a political vacuum. The international climate was also in a state of flux and it was against this background that national strategy, and the role of carriers in Anglo-

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91. Friedman, *Postwar Naval Revolution*, 29-30.
92. Friedman, *US Aircraft Carriers*, 204.

American defence policy, was formulated.

Although both Britain and America underwent a change of leadership - and also a change of government in the case of Britain - after the Second World War, neither the Labour Government under Prime Minister Clement Attlee in London nor the Republicans under President Truman in Washington, departed radically from their predecessors in terms of foreign policy.[93] Many of the shifts in British and American foreign policy and diplomacy during this period were forced by external stimuli and events.

Of these, the break up of the wartime Grand Alliance between Britain, the United States and the Soviet Union was the most ominous. Since 1941, the Soviet Union had been making expansionist demands. Stalin sought recognition not only of the territorial gains the Soviet Union had made during the tenure of the Nazi-Soviet Pact, but also of gains made later in the war. By July 1945, so-called 'friendly governments' had already been installed in Rumania and Bulgaria, despite Anglo-American protests that they breached the Declaration on Liberated Europe. In Poland, the Russians had also settled - unilaterally and without Anglo-American agreement - the German-Polish border issue by transferring twenty-one per cent of German territory to the pro-Communist Lublin Government, including the iron rich province of Silesia. Moreover, in the Russian occupation zone of Germany, the Soviets had begun removing installations to satisfy their reparations claim.[94]

Relations with the Soviet Union deteriorated steadily throughout 1946. Tensions increased in Europe and the Middle East as reports of Russian interference in Iran, Greece and Turkey intensified and it became clear that the relationship between the 'Big Three' was breaking down irretrievably. Britain had hoped to continue the wartime alliance with the Soviet Union in the postwar period, but as relations with the Russians became increasingly

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93. Bullock's biography of the Labour Foreign Secretary, *Bevin*, remains an excellent introduction to the foreign policy of the 1945-51 Labour Government. For introductions to the early foreign policy of the Truman Administration, see Gaddis, *United States and the Origins of the Cold War*; Robert A. Divine, *Since 1945. Politics and Diplomacy in Recent American History* (New York: Alfred A. Knopf, 1985) & Christopher Coker, *Reflections on American Foreign Policy Since 1945* (London: Pinter Publishers, 1989).
94. Bullock, *Bevin,* 20.

more difficult, it was on the United States that hopes of a peacetime alignment were increasingly pinned.

During the war, Anglo-American collaboration had been extremely close, extending into all areas of the war effort. Cooperation was evident in intelligence, atomic weapons research and in the joint structures that were established, including the Combined Chiefs of Staff Committee, the Combined Munitions Assignment Board and the Combined Shipping Adjustment Board.[95] The wartime alliance, however, was extremely atypical when set against the relationship between the two countries in the prewar period. Interwar relations had been remote and frigid, fuelled by mutual rivalry, American isolationism and British doubts about US reliability.[96] According to one commentator, the Anglo-American wartime alliance was 'abnormally close - a temporary response to a temporary world crisis', built on a common interest rather than a common heritage, and where traditional rivalries had been transmuted into arguments about strategy and decolonization.[97]

Indeed, as the war drew to a close, the unifying effect of fighting together against a common enemy rapidly evaporated and traditional Anglo-American differences resurfaced. Between 1945-1947, there was a perceptible cooling in Anglo-American relations as American foreign policy shifted away from the 'special relationship' and collaboration that had been cultivated during the war and back towards an independent postwar defence policy. Many of the joint wartime control boards were either abolished or slowly wound down. In August 1946, a serious blow was dealt to the wartime cooperation on atomic weapons by the passage of the MacMahon Act, which made all atomic collaboration with foreign countries,

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95. Robin Edmonds, *Setting the Mould. The United States and Britain 1945-1950* (Oxford: Clarendon Press, 1986), 16.
96. For more on Anglo-American naval rivalry during the interwar period see Roskill's *Naval Policy Between the Wars* vol. I *The Period of Anglo-American Antagonism, 1919-1929.*
97. David Reynolds, 'Roosevelt, Churchill and the Wartime Anglo-American Alliance, 1939-1945: Towards a New Synthesis', in W.M. Roger Louis & Hedley Bull (eds.) *The 'Special Relationship'. Anglo-American Relations Since 1945* (Oxford: Clarendon Press, 1986), 21, 38.

including Britain, illegal.[98] In the early postwar years, the British Government therefore faced a 'disturbing combination of anxiety about Russian *and* uncertainty about American policy.'[99]

During the first two years of peace, the foreign policy of the Truman Administration was diametrically opposed to that of Britain. As early as 1943, the Soviet Union had been identified by the British Government as the most likely threat to peace in the postwar period and by 1944 the Chiefs of Staff were unofficially referring to the Soviets as 'enemy number one.'[100] Although it was not widely felt that the Russians actually desired war, the Soviet Union was considered by the British Admiralty to be a potential naval threat, especially in submarine warfare.[101] By the spring of 1946, the entire British defence establishment, including the Foreign Office, which was generally less anti-Soviet than other departments, had come round to the same point of view. In their report on the strategic position of the Commonwealth, the COS formally named the Soviet Union as the only potential aggressor at this time.[102]

Since 1944, the British government had tried to convince the Americans to abandon all efforts to cooperate with the Soviets and to adopt a firmer stance towards them. Although President Roosevelt, before his death in April 1945, had shown signs of adopting a tougher approach towards the Soviet Union, the new Truman Administration did not share the British estimates of Russian intentions. Rather than confront the Soviets, Truman believed that it would be possible to reach agreement with them through conciliation and personal diplomacy.[103] Underlying this belief was the conviction that the Soviet Union's behaviour was due to internal political problems and that Stalin did, in fact, desire to get along with the

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98. Margaret Gowing, *Independence and Deterrence. Britain and Atomic Energy, 1945-52* Vol. I: *Policy Making* (London: Macmillan, 1974), 87.
99. Bullock, Bevin, 19.
100. Anderson, Cold War, 10-11.
101. DO (46) 5th Meeting, 15 February 1946, CAB 131/1.
102. DO (46) 47 'Strategic Position of the British Commonwealth', 2 April 1946, CAB 131/2.
103. Gaddis, 'Insecurities of Victory', 244.

West.[104]

Rather than form any binding alliances with Britain, therefore, Truman preferred to follow an independent postwar policy and was anxious to avoid being seen as 'ganging up' on the Russians. In particular, he was more keen to place his faith in the ability of the new United Nations Organization (UN) - which would include the Soviet Union - to manage peace and settle conflicts. Moreover, Truman was reluctant to ally the United States with a country of whose intentions many Americans still remained deeply suspicious. The State Department's analysis of the postwar world, for instance, saw the threat to postwar peace arising from the creation of spheres of influence and this was as likely to emerge from British as from Soviet behaviour.[105] Although a signatory to the Atlantic Charter of 1941, which endorsed the principle of self-determination, Britain had quickly reoccupied her former colonies in south-east Asia after the war.[106]

Not all of those in the British establishment were anxious to ally themselves with the Americans either. Despite Winston Churchill's advocacy of a 'special relationship between the British Commonwealth and Empire and the United States', traces of anti-Americanism were still detectable.[107] Neither Anthony Eden, nor his successor at the Foreign Office, Ernest Bevin, were eager to place Britain - economically or militarily - behind the United States or relinquish the cherished Great Power status that they feared this would occasion. The restrictive conditions attached to the American postwar loan to Britain, for example, had included abandoning the system of Imperial Preference in favour of making sterling convertible.[108] While Eden thus pushed for closer economic and defence cooperation with western Europe, Bevin supported the establishment of a 'third force' of European, Imperial

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104. Ibid., 251.
105. Ibid., 244.
106. Bullock, *Bevin*, 33.
107. Ibid., 224.
108. Edmonds, *Setting the Mould*, 101.

and African resources to lessen dependence on the US.[109]

Anglo-American relations during the first two years of peace were therefore decidedly cool and distant. By 1946, there was still no 'blank cheque' of American support for Britain, despite the British Chiefs of Staff insistence on the need for the early assistance of the United States in a conflict with the Soviet Union.[110] However, if the past history of Anglo-American relations was anything to go by, moves towards closer strategic cooperation would only take place when a sense of common interest or threat became apparent. By the end of the 1940s, events in Europe had transpired to bring Britain and America closer together again. Before the effect of this on Anglo-American strategic cooperation is examined, particularly its impact on the development of carrier aviation in both navies, it is necessary to briefly examine the machinery that facilitated this cooperation.

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109. Reynolds, 'Wartime Anglo-American Alliance', 38; C.J. Bartlett, *'The Special Relationship': A Political History of Anglo-American Relations Since 1945* (London & New York: Longman, 1992), 15.
110. DO (46) 47 'Strategic Position of the British Commonwealth', 2 April 1946, CAB 131/2.

# CHAPTER 3

# THE MACHINERY OF ANGLO-AMERICAN STRATEGIC COOPERATION

## I. The Combined Chiefs of Staff Organisation

If the political administrations in both Britain and the United States remained suspicious of each other in the early post war period, the same cannot be said of the two countries military establishments. Both the American and British Chiefs of Staff entertained broadly similar views of foreign affairs and, unlike their political overlords, were eager for wartime cooperation to continue in the postwar period.[1] Like their British counterparts, the United States Joint Chiefs of Staff also believed that they should adopt a tougher line with the Soviets. Roosevelt's Chief of Staff, Admiral William Leahy, and the Secretary of the Navy, James Forrestal, for example, both doubted whether the West would be able to cooperate with the Soviet Union after the war. The JCS also doubted whether, with the power of veto in the United Nations, the Military Staff Committee of the Security Council would be able to maintain world order.[2]

Both the British and American chiefs were therefore keen for the Combined Chiefs of Staff Committee (CCS) to continue after the war. Standards of collaboration between the US and British armed forces during the war had been very good. Established in January 1942 to allow the exchange of intelligence and to coordinate the war effort, the CCS organization had enabled American and British forces 'to fight together at sea, on land and in the air, virtually as one cohesive military force.'[3] (fig. 3.1)

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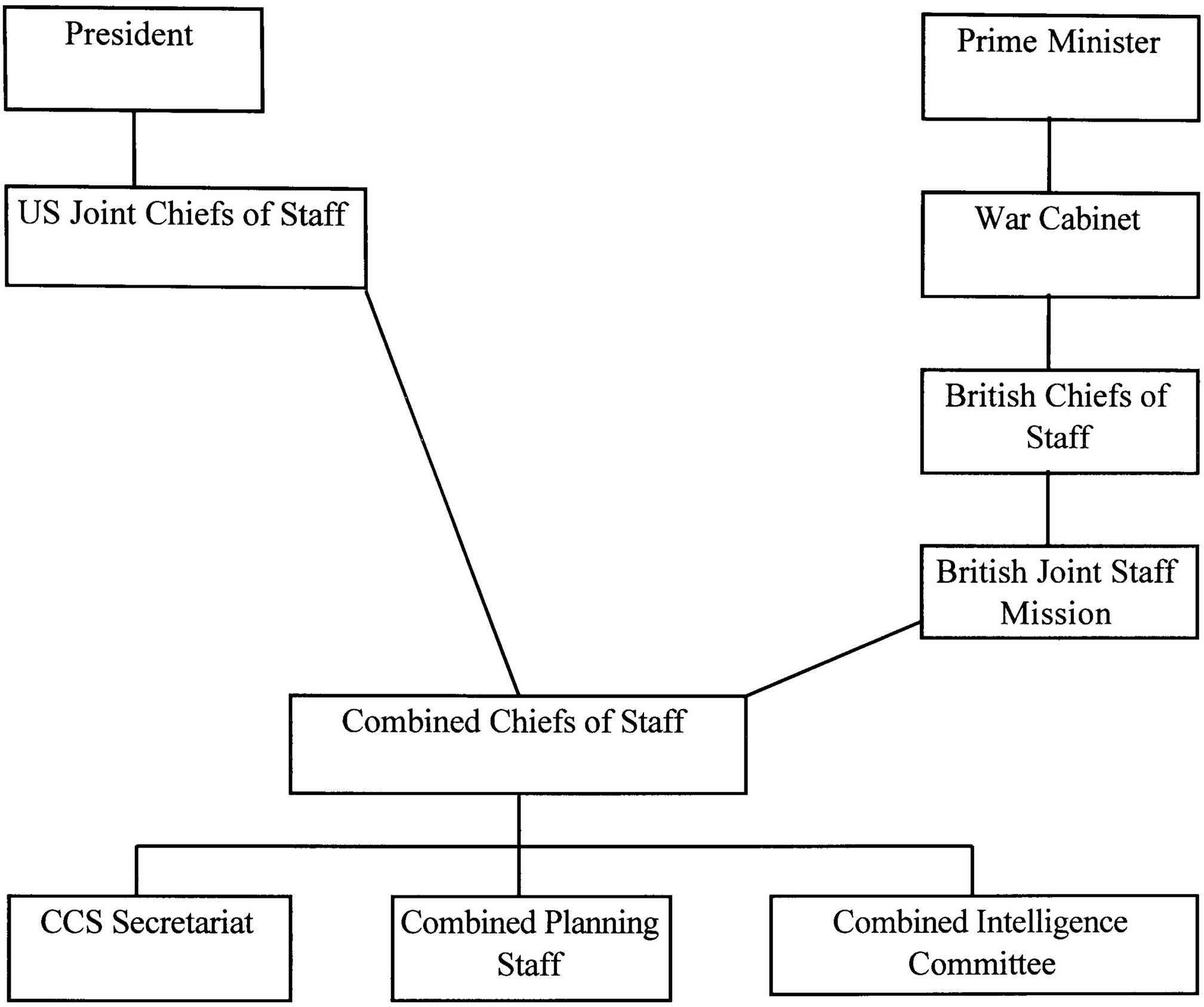
1. COS (47) 29th Meeting, 19 February 1947, Ministry of Defence Papers [DEFE] 4/2.
2. See for example, SWNCC 282 'Basis for the Formulation of a US Military Policy', 19 September 1945, reproduced in Etzold and Gaddis, *Containment*, 39-44.
3. COS (46) 126 'Collaboration with the US', 27 April 1946, CAB 121/349.

*Fig. 3.1. Combined Chiefs of Staff Organisation, 1942-1945*




Source: Sean Maloney, *Securing Command of the Sea. NATO Naval Planning 1948-1954* (Annapolis, M.D.: Naval Institute Press, 1995), 9.

In the first year of peace, cooperation between the services had continued: 'with the US Army relationships are excellent,' reported the British COS in the spring of 1946, 'with the Navy they are nearly as good; and only the US Army Air Forces have so far shown any serious reluctance to collaborate.'[4]

The British COS were very keen to retain the Combined Chiefs of Staff in the

4. COS (46) 110 'Collaboration with the US in the Technical and Scientific Fields', 9 April 1946, CAB 121/349.

postwar period. Not only would a firm show of Anglo-American unity deter potential aggressors, but close cooperation would also ensure greater efficiency in the armed forces in a future war.[5] Collaboration with the Americans on Research and Development (R & D) in the defence field was thus particularly desired. 'On defence grounds,' argued the British Chiefs in May 1945, 'we have much to gain from an unrestricted interchange of technical information in the defence field', while Britain also had a 'very great contribution' to make in the scientific field.[6]

The Admiralty were especially eager to move towards closer cooperation with the United States Navy, both in terms of strategic doctrine and equipment policy. With the postwar naval construction efforts of other Powers likely to aim at American standards of size and power in shipbuilding, it was widely felt that the Royal Navy had much to learn from American naval policy, organisation and methods in the design and production of ships and equipment. As Admiral Somerville, the Admiralty's representative in Washington, warned 'we cannot afford to be complacent because of our traditional lead in the past'.[7]

Indeed, as early as 1942, the Joint Technical Committee at the Admiralty had concluded that the future Royal Navy would have to rely, in part, on larger US-made aircraft and in an emergency, it was anticipated that the US would supply any interim type aircraft until the next generation of British aircraft were available. The new *Malta* class fleet carriers and the *Ark Royal* and *Eagle* fleet carriers had been designed with this expectation in mind.[8] The average height of the hangars in existing fleet carriers, for example, was only sixteen feet, leading to the recommendation that:

> ...with a mind on future war, it would be as well to keep in step with American

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5. JP (45) 242 (Final) 'Retention of the Combined Chiefs of Staff', 23 September 1945, DEFE 2/1347.
6. Ibid.; COS (45) 110 'Collaboration with the United States on Research and Development in the Defence Field', 18 May 1945, CAB 121/349.
7. Letter from Somerville, 3 July 1945, ADM 1/19308.
8. Friedman, *British Carrier Aviation*, 249.

> carrier construction in the way of lifts, arrester gear and the like. For example, the hangar height of their carriers was 17'6" and it would be to our advantage that all ours should be the same to facilitate the operation of American aircraft should the need arise.[9]

During the war, most of the Royal Navy's departments and divisions were happy with the information that they received from their counterparts in the United States Navy on staff and technical requirements.[10] As the war drew to a close, however, restrictions on the exchange of military information were imposed by the American authorities. Only that information considered useable in the war against Japan was made available to the British and there were difficulties in getting access to certain projects started after VJ-Day.[11] The Chiefs of Staff feared that if the Americans proceeded alone in R & D, the ability of the services to cooperate with their US counterparts would be jeopardised.[12] In July 1945, for example, the Admiralty held informal discussions with the United States Navy to investigate the possibility of future cooperation in naval R & D. The USN, however, were not inclined at this stage, to seek a formal treaty, maintaining that any agreement would have to be confined to military circles and not involve the State Department or Foreign Office.[13]

The problem, as such, was not an unwillingness to work with the British services. Rather, the difficulty lay with the lack of any clear directive authorising the US services to do any more than they already were and the impossibility of formal collaboration being allowed to continue indefinitely.[14] In particular, President Truman's desire for the

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9. Naval Aircraft Design Sub-Committee of the Future Building Committee, 16th Meeting, 3 December 1945, ADM 116/5977.
10. See the minutes by various departments and divisions in the file 'RN-USN Exchange of Technical and Staff Information', July-August 1945, ADM 1/17272.
11. COS (46) 110 (0), 9 April 1946, CAB 121/349.
12. Telegram from British Joint Staff Mission [BJSM] in Washington, 8 August 1945; Letter from PM to E. Jacob, 9 November 1945, CAB 121/349.
13. Memorandum to DCOS Committee from Assistant Controller (R & D), 10 July 1945, ADM 1/22331; DCOS (45) 41 'Informal Discussions Between the Admiralty and Navy Department - Report by Assistant Controller (R & D), 18 July 1945, DEFE 7/284.
14. Telegram from BJSM, 29 November 1945, CAB 121/349.

UN to proceed on the basis of open cooperation between all powers - including the Soviet Union - prevented the US Chiefs from officially recognising special terms for postwar Anglo-American collaboration.

With the future of the Combined Chiefs of Staff uncertain, however, both the US COS and the British COS were anxious for a policy and a procedure for mutual collaboration to be worked out. Since permission to carry on openly was unlikely to be secured, the US Chiefs - led by General Dwight D. Eisenhower, the former World War II Commander and future President of the United States - therefore suggested, at a secret meeting with representatives of the British COS in February 1946, that the CCS go 'underground' and continue full collaboration under cover of other activities.[15] These 'other activities' included setting up a combined Anglo-American board, ostensibly to study combined records and lessons from the war; collaborating through the medium of the service attaches in the embassies in Washington and London; and even establishing a channel of collaboration through the US-Canadian Joint Defence Board.[16]

With such an arrangement dependent upon the continuing goodwill of both sides, however, the American solution did little to reassure the British. According to the British representatives, to base all plans on the unofficial opinion of the US Chiefs of Staff was not only politically hazardous but also akin to 'building our house on sand.'[17] The British Chiefs therefore persuaded their American counterparts to pursue the overt continuation of the CCS.[18] By May 1946, however, it had become clear that the US State Department would not support the establishment of permanent military collaboration, or indeed any concept of a fraternal association, between Britain and America, and it was decided that it would be more politic to settle for collaboration on an

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15. The telegram from the BJSM to COS reporting on these talks, JSM 182 is still classified, but an unclassified copy can be found in the Prime Ministers files at PREM 8/170.
16. Ibid.
17. Memorandum by JSM in COS (46) 123, 24 April 1946, CAB 121/349.
18. JSM 204, 16 March 1946, DEFE 2/1347.

informal basis only.[19] Following the establishment of the North Atlantic Treaty Organisation (NATO) in April 1949, however, even the unofficial operation of the Combined Chiefs of Staff organisation became politically impossible and in October 1949, it was formally dissolved.[20]

Nonetheless, Anglo-American collaboration in defence did continue, on a number of levels and through a variety of channels; as one American officer observed, a considerable amount of 'healthy hanky-panky' still went on.[21] Although the CCS committee had been publicly discontinued, the existing machinery of the organisation was allowed to continue in fact if not in name and there was little change in the relations or contact between the American and British Chiefs of Staff. Loathe to sever all ties completely, the US and British COS had agreed that they must continue working and planning together and that close military collaboration must continue 'under the counter.'[22] The work of many of the former Combined Committees thus continued, under different names and locations. The functions of the Combined Staff Planners, for instance, was now to be carried out by the Joint Planning Staff of the British COS and the Joint Strategic Plans Committee of the US JCS.[23]

During the first postwar decade, the British and American chiefs of staff were therefore able to maintain, albeit in a different guise, the close collaborative relationship that had developed during the Second World War. As chapters four and six

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19. SM-5242 Memorandum from Joint Strategic Survey Committee to JCS, 13 March 1946, Records of the Joint Chiefs of Staff [RG 218]/Decimal File/1951-1953, Box 81, File 334, sec. 1, National Archives and Records Administration [hereafter NARA. Unless otherwise stated, all other RG classifications are from this source], Maryland; COS (46) 123 'Technical and Scientific Collaboration with the United States', 24 April 1946, CAB 121/349; DCOS (46) 103, 16 May 1946, DEFE 2/1347.
20. 'Summary of Discussions Between the British Chiefs of Staff and the US Joint Chiefs of Staff in London, 2 August 1949', (n.a., n.d.), File 337, Sec. 1, RG 218/Decimal File/1948-1950, Box 132; COS (49) 113th Meeting, 3 August 1949, DEFE 4/23.
21. Quoted in Rosecrance, *Defense of the Realm*, 51.
22. 'Conference with the British Chiefs of Staff (London, 3 August 1949)', File 337, Sec. 1, RG 218/Decimal File/1948-1950, Box 132.
23. 'Future Status of the Combined Chiefs of Staff, 20 September 1949, File 334, Sec. 1, RG 218/Decimal File/1951-1953, Box 81.

demonstrate, bilateral Anglo-American strategic cooperation both continued and grew appreciably stronger between 1945 and 1955.

## II. Anglo-American Naval Cooperation

Anglo-American naval cooperation also continued in the postwar period. Having worked together in the Second World War, at times becoming one force, the British and American navies were also keen to maintain the close naval connection that had been built up. Although this desire extended generally to cooperating with all allied navies, the affinity between the Royal and United States navies, reflecting that between the British and American defence establishments generally during the war, was unparalleled by any other wartime association.[24]

Despite the fetters imposed on the exchange of military information by the American government immediately after the war, standards of collaboration between the British and American navies remained, on the whole, 'satisfactory and in some cases outstandingly so.'[25] Through the offices of the British Naval Staff at the British Joint Staff Mission in Washington, and the United States Naval Attaché in London, the two navies became well acquainted with each other's procedures, practices and principal personalities. Teams of British and American naval officers and scientists, for example, visited each other's defence and research establishments, to study and exchange information on various projects.[26] Other agreements secured the continuance of the wartime practice for the reciprocal use of British and American naval stations and air

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24. See for example 'Postwar Relations Between Royal Navy and Allied Navies' (c. late 1942), ADM 1/15886.
25. Letter from Admiral Henry Moore, British Admiralty Delegation, to Secretary of the Navy, 3 July 1946, ADM 1/20176.
26. DCOS (46) 94 'Collaboration with the United States in the Technical and Scientific Fields', 1 May 1946, CAB 121/349.

bases without the need to go through diplomatic channels.[27]

Nonetheless, collaboration between the British and American navies was far from complete, and in certain areas, according to the British Admiralty, it was particularly weak.[28] In British naval circles, it was widely believed that this discrepancy was due to the paucity of the Royal Navy's research and development facilities. As the Director of Naval Construction commented:

> What lies behind it, it is suspected, is a realisation of the meagreness of our Naval Research activities in comparison with theirs. It is well known in the United States that they are investing staff and money for naval research much more largely than we are and the thought naturally follows why should they, by collaboration, finance the research for the British Navy and incidentally for British industry. It seems likely that this condition of affairs must continue until we are able to meet them in this sphere on a more equal footing.[29]

Collaboration was also being hindered, others felt, by the opinion prevalent among American naval officers, that the United States Navy's thought and practice was well ahead of the Royal Navy's and thus they had nothing to learn from the British. This belief was reiterated several times by the Admiralty in the early postwar years, and at times appeared to border on an inferiority complex, but it was not entirely unfounded. As Captain Mumma, the head of the USN Bureau of Ships (BuShips), admitted, there was a feeling in BuShips that they had 'given a great deal of information to the Admiralty in World War II without receiving much in return.'[30] Moreover, as chapter seven shows, this sense of superiority of American procedure and practice persisted until the Royal Navy was finally able to demonstrate, by virtue of the angled deck, the steam catapult and the mirror landing sight, that it did, in fact, have a significant and valuable contribution to make to modern naval warfare.

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27. See minute dated 4 December 1946, CAB 121/350.
28. Marine engineering and naval construction were singled out by the Admiralty as fields in which collaboration was poorest. See letter from Admiral Moore to Admiralty, 3 July 1946, ADM 1/20176.
29. Minute by DNC, 27 July 1946, ADM 1/20176.
30. 'Report of a Conversation Between Commander Bowring, Assistant Naval Attaché and Captain Mumma, USN Bureau of Ships', 25 May 1946, ADM 1/20176.

Following the issue of a US policy directive in late 1946 authorising the release to Britain of 'all classified military information, ...all information relating to combined research and development projects to which the United Kingdom has contributed or is contributing, and all US research and development projects', cooperation between the British and American navies did become closer and the supply of information did improve.[31] 'A great deal of useful work,' reported the Admiralty in early 1948, '...tending towards standardisation of British and American naval materiel and techniques is at present in progress.'[32] This was particularly true in those fields where the Royal Navy did have either a lead or equality in technical progress, since the United States 'here find it profitable to offer information.'[33] As chapter seven reveals, Anglo-American naval collaboration was most thoroughly effected in the field of carrier aviation, where both American moral backing and financial aid were most forthcoming in support of British innovations.

By the end of the period under a review, a number of formal and informal agreements on procedure and standardisation in a number of areas existed between the British and United States navies. Arrangements were made, for example, to share work of common interest in certain fields as a means of securing economy of manpower and to avoid duplication of effort.[34] In June 1950, an American-British-Canadian agreement on standardisation was signed, establishing channels of direct communication between the parallel authorities and naval staffs.[35]

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31. DCOS (46) 244 'United States Policy on the Release of Military Information to Other Nations', 24 December 1946, CAB 121/350.
32. Minute by Head of Military Branch, 16 January 1948, ADM 1/21022.
33. DRP (48) 107 'Exchange of Research and Development Information with the United States', 6 August 1948, DEFE 10/22.
34. COS (47) 152nd Meeting, 8 December 1947, DEFE 4/9.
35. JWPC/P (51) 22 'Standardization', 8 March 1951, DEFE 10/188; 'Annual Report of the Chief of the Bureau of Aeronautics to the Secretary of the Navy, Fiscal Year 1951', 4 October 1951, Records of the Bureau of Aeronautics [RG 72]/Annual Reports 1942-1956, Box 2.

## III. Central Organisation for Defence

The British Admiralty and the United States Navy department did not, of course, function in isolation from the central machinery for defence of which they were a part. Neither were they immune from the changes made in the bureaucracy for defence; it is within this context that naval decision-making took place and also the context within which naval historians must make their analysis. Before proceeding further, therefore, it would be valuable to outline the main features of the British and American central organisations for defence as they evolved during the early postwar years.

In both countries, the experience of several years of war had highlighted the need for improvements in defence organisation. The Second World War had witnessed not only the growth of an enormous politico-military bureaucracy but also an increase in combined operations by the services. Both developments demanded that greater coordination and integration of political and military considerations be achieved if the armed forces - and indeed, the national economy - were to be fully prepared for future war.

In both Britain and America, significant changes were therefore made to the central organisation for defence in the years immediately following the war.[36] The 1946 White Paper on the Central Organisation for Defence in Britain and the 1947 National Security Act in the United States did not drastically overhaul the machinery for defence in either country but did aim to provide a more rationalized and coordinated national security structure.[37] The full history of the organizational changes made in the defence

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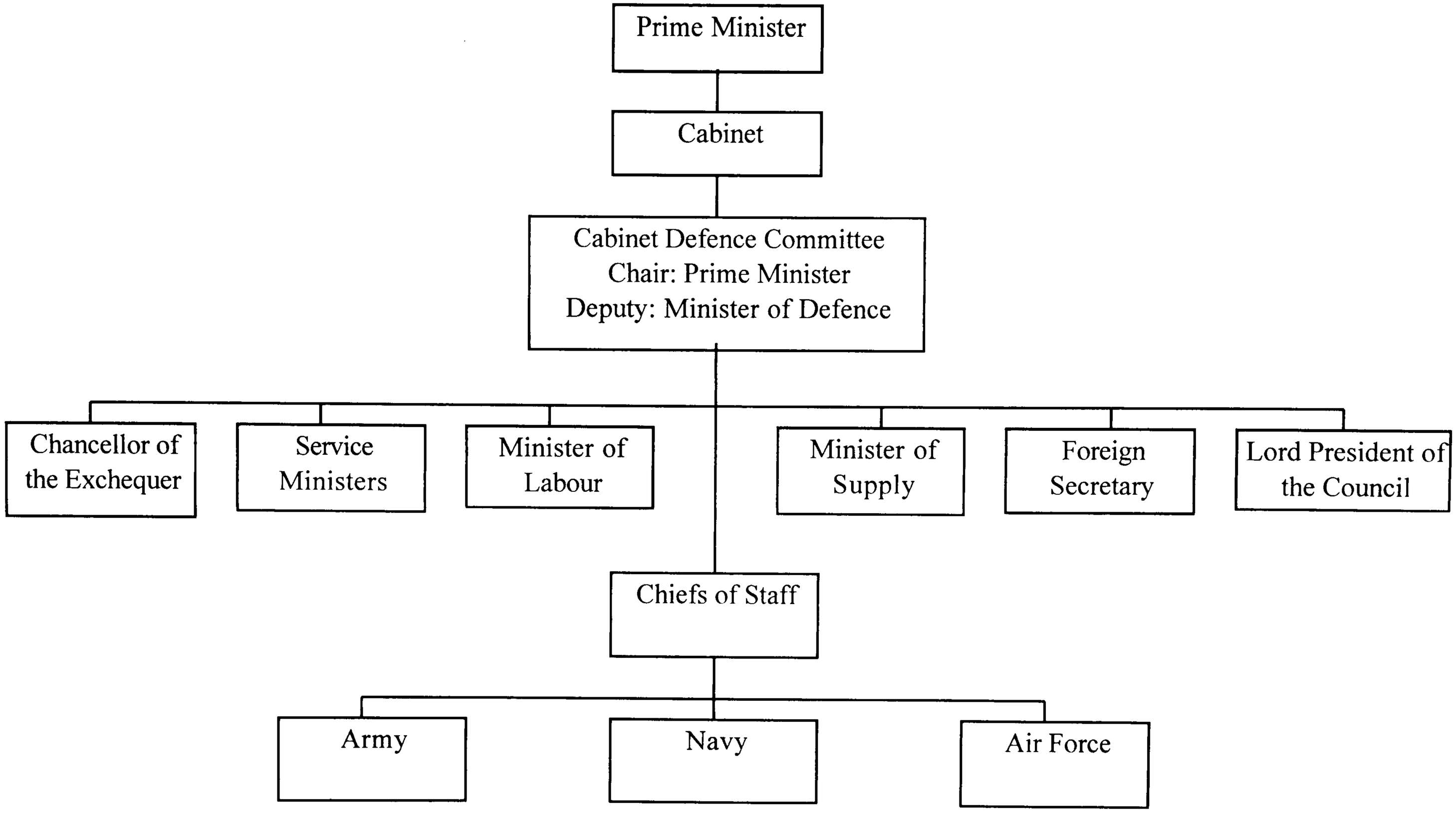
36. Martin Edmonds, 'Central Organizations of Defence in Great Britain' and Karen A. McPherson, 'The United States', in Martin Edmonds (ed.), *Central Organizations of Defense* (London: Frances Pinter & Colarado: Westview Press, 1985); Lawrence J. Korb, *The Joint Chiefs of Staff. The First Twenty-Five Years* (Bloomington & London: Indiana University Press, 1976); Franklyn A. Johnson, *Defence by Ministry, The British Ministry of Defence 1944-1974* (London: Duckworth & Co., 1980); Stanley L. Falk. *The National Security Structure* (Washington, D.C.: Industrial College of the Armed Forces, 1967).
37. 'Central Organisation for Defence', Cmd. 6923, October 1946; National Security Act of 1947, 61 Stat. 495.

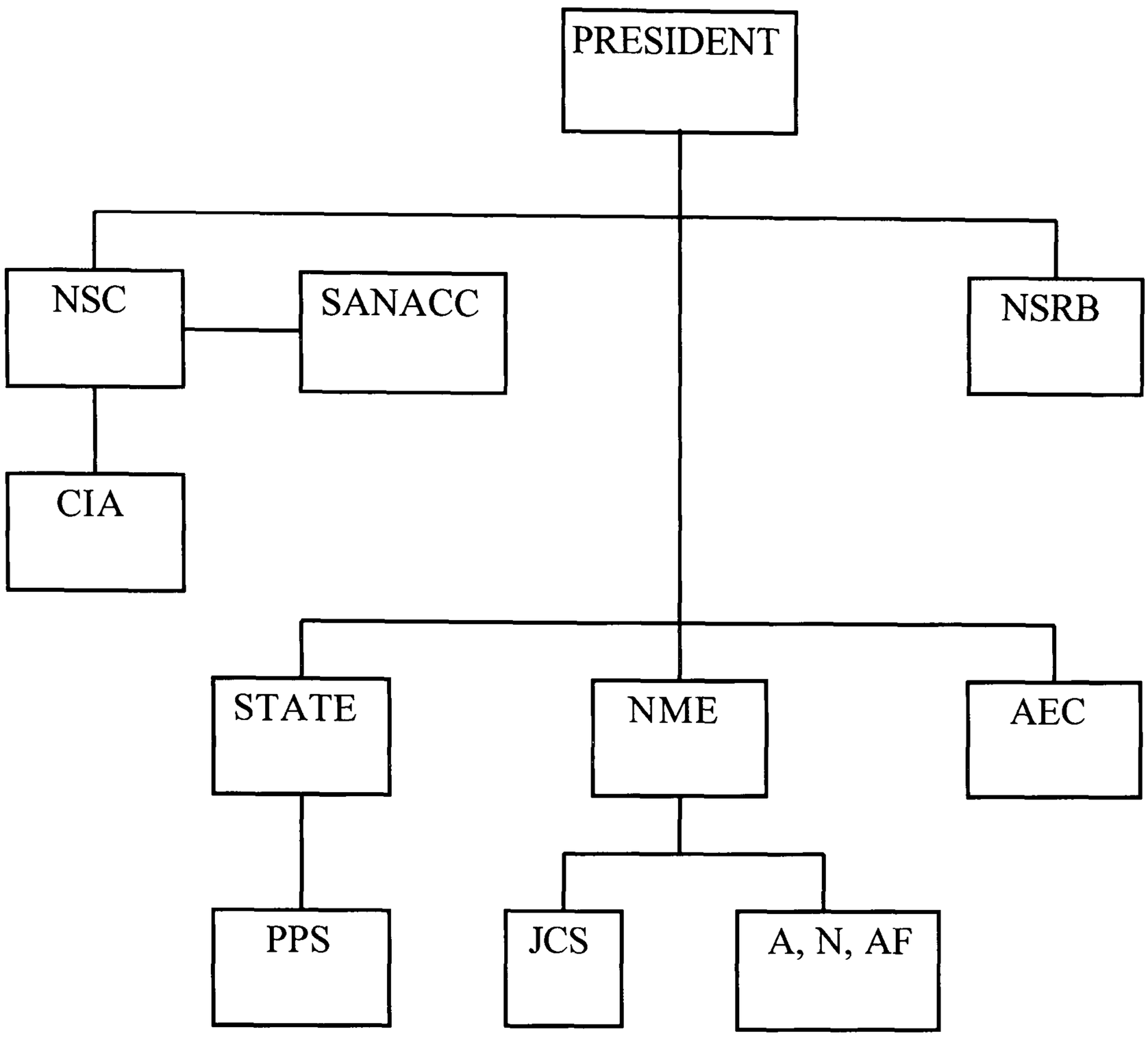
machinery do not concern us here and have been adequately documented elsewhere. On the following pages are a number of diagrams that help to illustrate the defence decision-making process in Britain and America and that have a direct relevance for the succeeding chapters.

*Fig. 3.2 Central Organisation for Defence, Britain, 1946*




Source: 'Central Organisation for Defence', Cmd. 6923

*Fig. 3.3. Organisation for National Security, 1947*

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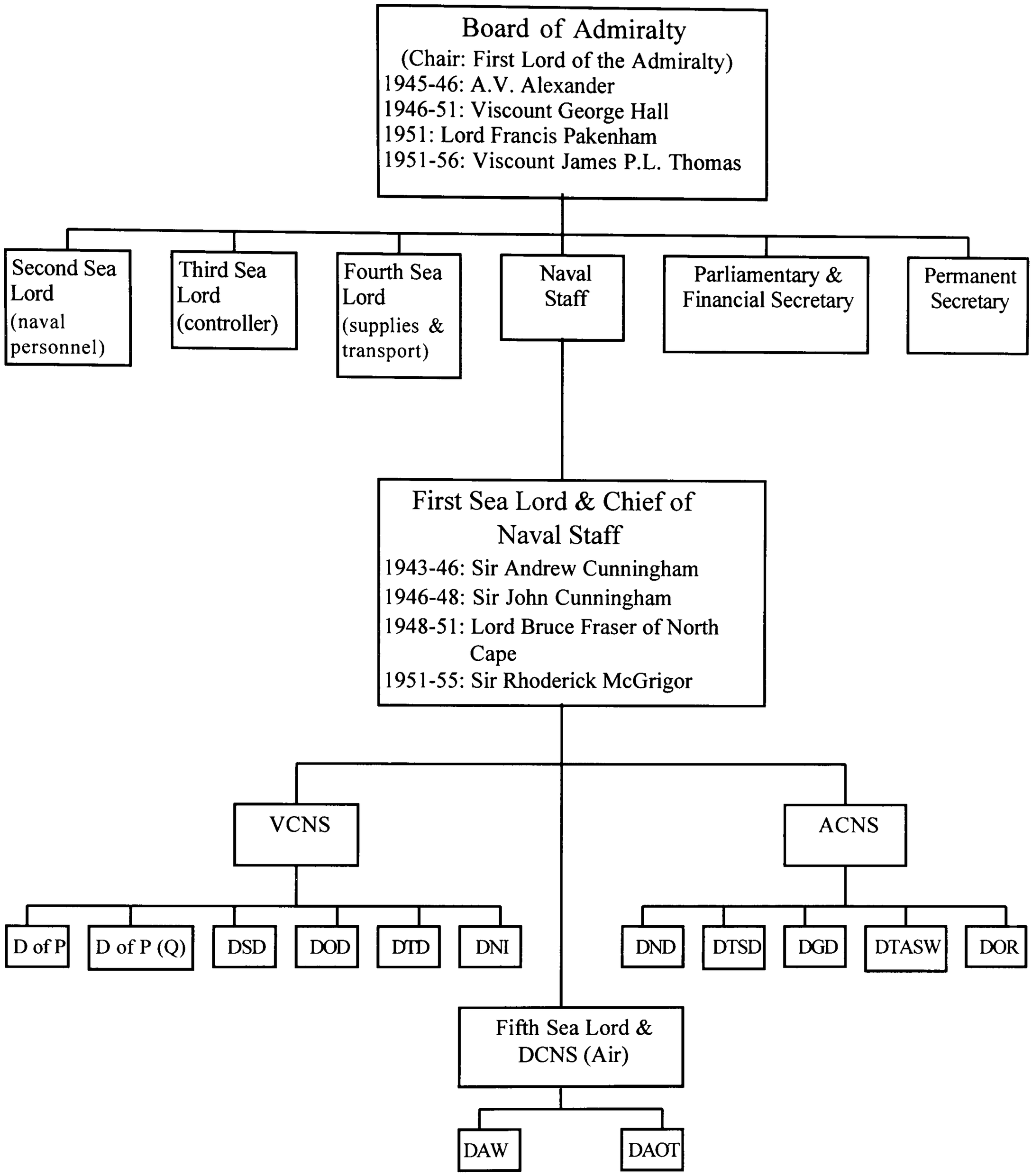
| AEC | Atomic Energy Commission |
| A, N, AF | Army, Navy, Air Force |
| CIA | Central Intelligence Agency |
| JCS | Joint Chiefs of Staff |
| NME | National Military Establishment |
| NSC | National Security Council |
| NSRB | National Security Resources Board |
| PPS | Policy Planning Staff |
| SANACC | State-Army-Navy-Air Force Coordinating Committee |
| STATE | US Department of State |

Source: Thomas H. Etzold & John Lewis Gaddis, *Containment. Documents on American Policy and Strategy, 1945-1950* (New York: Columbia University Press, 1978), 8.

## *Fig. 3.4 British Naval Staff 1945-1955*

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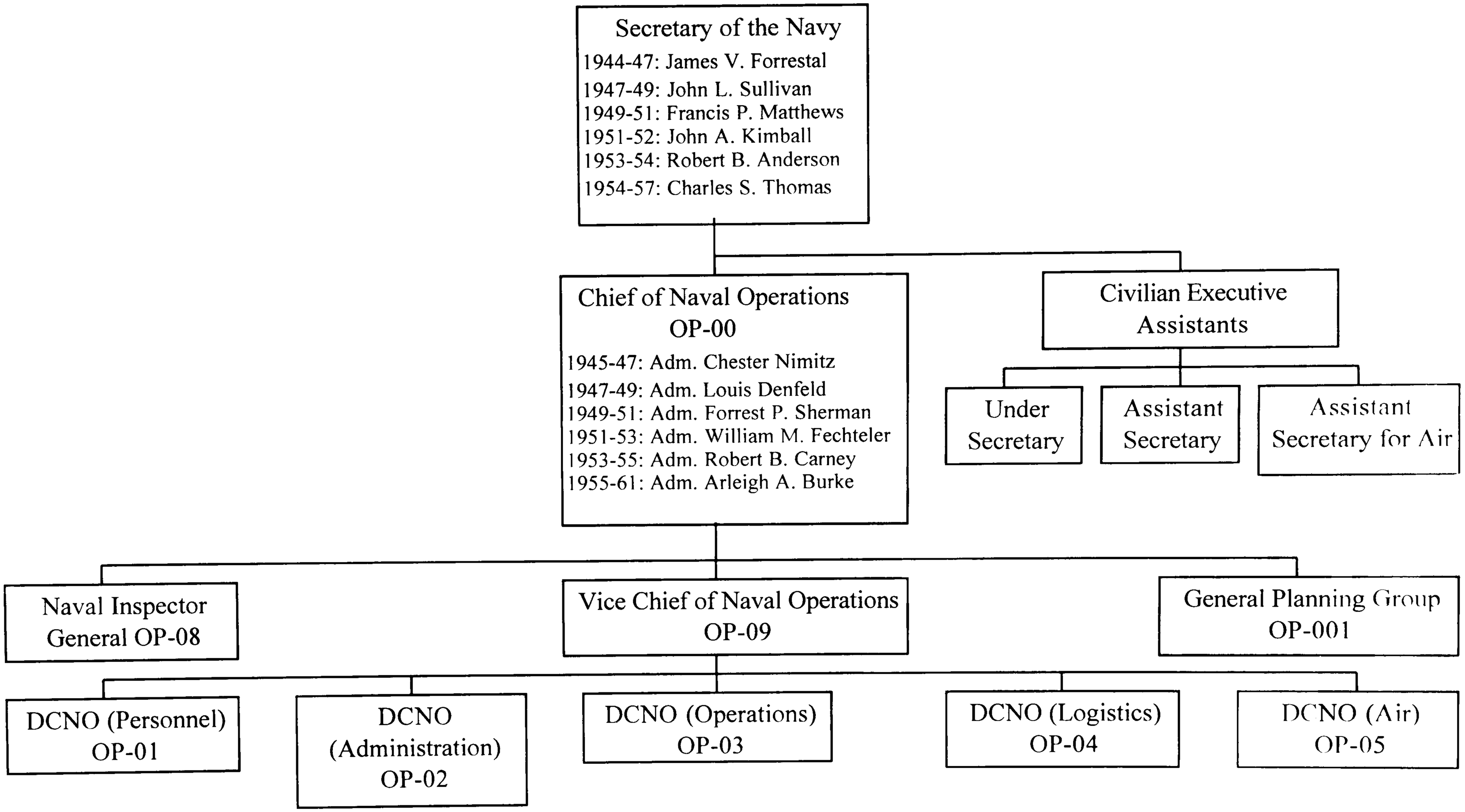
| VCNS | Vice Chief of Naval Staff | DND | Division of Navigation & Direction |
| D of P | Division of Plans | DTSD | Division of Tactical & Staff Duties |
| DofP(Q) | Division of Plans (administrative & logistical planning) | DGD | Division of Gunnery & Anti-Air Warfare |
| DSD | Division of Signals | DTASW | Division of Torpedo, Anti-Submarine & Mine Warfare |
| DOD | Division of Operations | DOR | Division of Operational Research |
| DTD | Division of Trade | DAW | Directorate of Air Warfare |
| DNI | Division of Naval Intelligence | DAOT | Directorate of Air Organisation & Training |
| ACNS | Assistant Chief of Naval Staff | | |

Source: Grove, *Vanguard to Trident*, 4-6.

*Fig. 3.5 Office of the Chief of Naval Operations 1945-1955*




Source: Jeffrey Barlow, *Revolt of the Admiral. The Fight for Naval Aviation, 1945-1950* (Washington, D.D.: Naval Historical Center, 1994), 166.

# CHAPTER 4

# ANGLO-AMERICAN STRATEGIC COOPERATION 1945-1950: THE TRANSITION FROM A NATIONAL TO A WESTERN STRATEGY AND THE ROLE OF CARRIER AVIATION

## I. British Naval Planning, 1945-1947

Consideration of Britain's postwar defence requirements, both within the Admiralty and the defence establishment as a whole, was already well under way by 1945. The overall machinery for the evolution of planning for postwar defence had been set in motion for some time before the end of the Second World War. In 1942-43 a number of specialized postwar planning committees had been established, culminating in 1944 in the Post-Hostilities Planning Staff of the Chiefs of Staff Committee, a body directed to prepare postwar military policy.[1]

The Admiralty had also turned its attention towards the consideration of postwar naval policy. In July 1942, the changing nature of naval warfare had inspired the establishment of the Future Building Committee (FBC) to reassess the shape of the fleet. Although originally intended only to estimate the needs of the Royal Navy in January 1944, the FBC was reformed at the end of the war as the Ships Characteristics Policy Committee. The FBC found that, although the navy still required a number of battleships, the most significant change was in the field of naval aviation with aircraft carriers now the key component of the fleet. A total of sixteen fleet carriers and forty-nine smaller carriers would be needed in 1944, although Britain would only have seven

1. For a more detailed discussion of British plans for postwar defence, see Julian Lewis, *Changing Direction. British Military Planning for Postwar Strategic Defence, 1942-1947* (London: Sherwood Press, 1988).

of the former by then.[2]

Nonetheless, the number of carriers required was actually increased in the Royal Navy's first postwar plan, produced in March 1944. It was considered that the postwar fleet would be built around the carrier task group (CTG), consisting of a maximum of four fleet carriers, with two battleships, two cruisers and eighteen destroyers in support. The strategic rationale behind the navy's postwar forces remained the defence of the sea communications of the Empire, necessitating both home and overseas bases. One CTG would therefore operate in Home Waters and one in the Far East, with an additional two carriers on each station. The active fleet was very large - 232 ships in total - including twelve carriers with a further ten in reserve. However, as Norman Friedman has noted, this force was *not* incongruous with existing British naval resources. In 1945, the Royal Navy had six fleet carriers with seven more on order, and while the plan did not include any assessment of potential postwar enemies, it was impracticable to do so anyway, since the fleet outlined in 1944 might well be in place for a generation or more.[3]

Early naval policy for the postwar period was therefore more a statement of requirements for maintaining the Empire's lines of communication than definite plans for strategic defence. Any assumptions as to the latter would be futile until the size and composition of other navies was known. This remained the case even with the end of the war. Nonetheless, by 1945 the Admiralty had come under increasing pressure to make an early decision on postwar naval requirements. With the end of the war, it would be necessary to justify to Parliament and the public all money spent on the armed forces. Lord Cherwell, the Paymaster-General had already questioned the need for two new battleships given the development of anti-ship missiles.[4] It would, however, be a difficult task, for as Captain Godfrey French, Deputy Director of the Plans Division noted,

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2. Friedman, *British Carrier Aviation*, 268-271.

3. Friedman, *Postwar Naval Revolution*, 32.

4. W.P. (44) 764, 'Battleship versus Aircraft', memorandum by the Paymaster-General, 29 December 1944, ADM 205/53.

'without knowledge of the strength of the postwar navies of other nations, the task of fitting proposals for the Empire's naval strength into any clear-cut strategical picture is extremely difficult'.[5]

The only solution, therefore, was to answer in the form of a policy statement and justify the Admiralty's plans for the postwar fleet to Parliament primarily in terms of the tasks to be fulfilled in a future war rather than on the need to fight any particular foe. Defence of sea communications remained paramount, and the Admiralty thus envisaged a role for the Royal Navy in war which closely resembled that played in the last war. With the Battle of the Atlantic still fresh in the memory, the main task of the navy in war was considered to be the protection of merchant shipping against surface, air and underwater attack. Other roles included destroying the enemy's sea and air forces, cutting the enemy's sea communications and cooperating with the other services in amphibious operations. As the centrepiece of any major tactical unit, the aircraft carrier in particular would be responsible for conducting air strikes against enemy surface forces, providing fighter cover for convoys, ASW and reconnaissance.[6]

Unsurprisingly, these traditional duties yielded a plan for a fleet comparable to that used in the last war, with heavy forces in Europe and the Far East and lighter forces in the Atlantic. The peacetime fleet was to consist of two main fleets, one in Home Waters and one in the Mediterranean, each containing a heavy squadron and a light escort force. Overseas there were to be four stations. With the increasingly vulnerable position of the United Kingdom base to attack from long-range aircraft and missiles, the importance of naval bases was now even greater.[7] Peacetime strength was estimated at four battleships, four fleet carriers, ten light fleet carriers, thirty-two cruisers, sixty-four destroyers, forty-

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5. 'The Postwar Navy and the Policy Governing its Composition', Paper B424, 29 May 1945, ADM 167/124. The second part of this paper, 'Composition of the Postwar Navy', Paper B435, 12 September 1945, can also be found in this class. Unless otherwise stated, the following two paragraphs are based on these documents.
6. See also the remarks made by the DTSD, Captain C.L. Robertson, 3 May 1945, ADM 205/49.
7. 'Organisation and Requirement of Postwar Naval Bases', paper by Director of Plans [D of P], 7 September 1945, ADM 205/50.

five submarines, sixty escorts and 500 front-line aircraft. In a war, it was estimated that the Empire would be capable of mobilising ten battleships, nine fleet carriers, twenty-three light fleet carriers, forty-three cruisers, 144 destroyers, 220 escorts, eighty-five submarines and 1,300 front-line aircraft.

The size of the postwar fleet postulated was large and ultimately unobtainable. Although certainly overambitious, it was never suggested nor assumed by the Admiralty that this fleet should be maintained indefinitely; it was more an inventory of the fleet than a serious proposal for the shape of the future fleet. The Admiralty's policy at this stage was to safeguard its considerable wartime assets in a still uncertain strategic environment and to react with caution and pragmatism. As the navy's planners noted:

> At the end of the war we shall have a Navy which has been developed to meet the requirements of naval warfare in its latest known form. It will represent the experience of over six years of war and it is therefore sound that no major alterations should be made to its structure *until the value of such alterations has been established beyond all doubt.*[8]

Indeed, until the strategic picture became clearer and assumptions could be made as to particular postwar enemies, British naval plans were determined more by political considerations than upon any strategic grounds.[9] Two assumptions in particular exercised a powerful influence on Admiralty thought at this time, not only in calculating future naval strength, but also in deciding what role the Royal Navy would play in war. The first assumption was that the United Nations Organisation, with the Security Council's power of veto, provided no security against future war between the Powers: 'in the present stage of international understanding, it would be unwise to rely entirely on a world security organisation.'[10] The second assumption was that, although war

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8. 'State of Planning for the Post War Fleet', memorandum by Plans Division, 5 March 1945, ADM 205/53. Emphasis added.
9. 'A Balanced Post-War Fleet', April 1945, ADM 205/53.
10. 'The Postwar Navy and the Policy Governing its Composition', Paper B424, 29 May 1945, ADM 167/124.

against the United States was unthinkable and it was to be hoped that in any future conflict the US would again be allied to Britain, past experience suggested that it was unlikely America would take part in the early stages of a war.[11]

Both of these assumptions were prevalent throughout the British defence establishment at this time and led to one inevitable conclusion in defence planning as a whole during this period - Britain would have to maintain strong, independent armed forces, especially if the Empire was to be faced once more with 'holding the ring' alone. In spite of the straitened economic circumstances in which Britain found itself after the war, this conclusion lent credence to and reinforced the enduring belief that Britain still was, and should remain, a first class global power. Within the Admiralty, it helped cultivate the belief that just as it was 'no longer strategically sound to calculate the strength of the fleet, class by class, by comparison with the strength of the most likely enemy or enemies', nor should the Royal Navy be wholly dependent upon the United States Navy for assistance in defending the Empire's communications; British naval strength must be on an absolute basis, equal to its tasks and 'in no way related to that of America.'[12]

Accordingly, the latest plans for the strength of naval aviation in a future war by the target date of 1953 proposed a large numbers of carriers and naval aircraft to fulfil both defensive and offensive roles. Ten fleet carriers, forty light fleet carriers, seven escort and replenishment carriers and 2,000 front-line aircraft represented the ideal carrier component of the fleet. However, it was recognised that for financial and manpower reasons, it may only be possible to mobilise the fleet for a defensive war, in which case ten fleet carriers, twenty-five light fleet carriers and 1,500 front-line aircraft would be needed.[13]

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11. Ibid.
12. DO (46) 97 'Size of the Navy', 26 July 1946, CAB 131/3; 'A Balanced Postwar Fleet', April 1945, ADM 205/53.
13. 'Minimum Peacetime Strength of Naval Aviation Consistent with Ability to Expand at Lowest Acceptable Rate in War', appreciation by the Plans Division, 18 October 1946, ADM 205/64.

Even before a potential future enemy had been identified, Britain's strategic rationale during the early postwar period was therefore evolving along the lines of the need for an independent defence posture, based on the requirement to provide defence and resist aggression alone. Another characteristic of British defence planning at this time was its focus mainly on the long-term threats that faced Britain and the Commonwealth. Even after a conflict with the Soviet Union had been identified in April 1946 as 'the only situation in which it at present seems that the Commonwealth might again become involved in a major war,'[14] it was not considered likely that this threat would materialize for some time to come. Even without the problems of uranium supply and a means of delivery, it was estimated that the Soviet Union would not pose an atomic threat to Britain before 1956.[15] Although the Russian submarine fleet was regarded by the Admiralty as a potential naval threat - Naval Intelligence estimated that the Russian navy already had over 200 submarines of various types and possessed German plans for the new larger Type XXVI U-boats - it was also concluded that there would be many, perhaps insurmountable, obstacles to overcome before the conception became reality.[16]

British strategic priorities in the early postwar years were therefore based on long-term defence principles. In January 1947, for example, the so-called 'three pillars' of Britain's strategy were defined as (i) the defence of the United Kingdom (ii) the maintenance of sea communications, and (iii) a 'firm hold' in the Middle East.[17] The propensity to plan for long-term strategic defence had been reinforced five days earlier by the decision of a special Cabinet sub-committee to make a British atomic bomb.[18] Britain could not, at this time, afford the costs of a defence plan based on short-term principles. The task of national reconstruction was not yet complete and the cost of

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14. DO (46) 47 'Strategic Position of the British Commonwealth', 2 April 1946, CAB 131/2.
15. DO (46) 89 'Future Developments in Weapons and Methods of War', 8 July 1946, CAB 131/3.
16. N.I.D./16 'Russian Naval Tactics', 10 October 1946 & minute by D of P, 10 November 1946, ADM 1/20030.
17. COS (47) 9th Meeting, 13 January 1947, DEFE 4/1.
18. Gen 163, 1st Meeting, 8 January 1947, CAB 130/16.

maintaining the armed forces, even after the manpower cuts, remained a heavy burden on the national economy.

Despite the risks, preparations for a short-term crisis were sacrificed. In February 1947, the Minister of Defence (MOD), A.V. Alexander, proposed a ten-year planning framework for the services with a financial ceiling of £600 million per annum (seven per cent of the national income) and an emphasis on long-term research and development.[19] Although reminiscent of the pre-war 'Ten Year Rule' imposed by the Cabinet in 1919, the 1947 ten year planning assumption was, as Eric Grove has demonstrated, largely defined by the Chiefs of Staff themselves.[20] Following the conclusion of the 'Future Planning Section' of the Joint Planning Staff (JPS) that premeditated war by the Soviet Union was unlikely before 1956, the COS agreed with the MOD that 'planning should proceed on the assumption that the likelihood of war in the next five years will be small. The risk will increase gradually in the following five years and increase more steeply after ten years.' Unlike the interwar version the '5+5' planning assumption, as it has been called, was fixed and not renewable, and thus established 1957 as the date by which Britain's defence preparations should be ready for war.

The long-term basis of British defence planning and the COS identification of 1957 as the most critical year was reaffirmed by the first comprehensive statement of British postwar strategic requirements in May 1947. The 'Future Defence Policy' (also known as the 'Overall Strategic Plan') was predicated on the possibility of war with the Soviet Union after 1956.[21] Since the United Nations was still regarded as providing no

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19. COS (47) 33, 18 February 1947, DEFE 5/3.
20. Eric Grove, 'The Post War 'Ten Year Rule' - Myth and Reality', *Journal of the Royal United Service Institute*, vol. 129, no. 4 (December 1984), 48-54. The remainder of this paragraph is based on this article.
21. DO (47) 44 'Future Defence Policy', 22 May 1947, CAB 131/4 is still retained although a full copy can be found among the papers of the first chairman of the Defence Research Policy Committee, Sir Henry Tizard, DEFE 9/8. A draft of the paper can also be found as JP (47) 55 in DEFE 6/2. JP (47) 67 'The Future Shape and Size of the Armed Forces', 19 May 1947, DEFE 6/2 assesses the forces needed to fulfil the Overall Strategic Plan while DRP (47) 98 'Future Defence Research Policy', 30 July 1947, DEFE 10/19 recommends future scientific policy based on the OSP. The following three paragraphs are based on these documents.

security against war, the planners believed that the only effective deterrent to future war was evidence of Britain's intention and ability to take immediate offensive action. However, against Russia as a potential aggressor, a number of measures were required if Britain was to survive in war. These included maintaining properly balanced forces, increasing the scientific and technical lead, especially in the development of atomic weapons, and acquiring air forces capable of penetrating the Soviet Union and destroying their war-making capabilities. The most important requirement, however, was to have the 'active and very early support' of the United States. Since no other combination of European powers would be capable of preventing Russia overrunning North-West Europe, only the US, 'on account of her manpower, industrial resources and her lead in the development of weapons of mass destruction [could] turn the balance in favour of the Democracies'.

The basic requirements of Britain's strategy remained the 'three pillars'. The defence of the United Kingdom necessitated strong air defences, an effective bomber force and naval control and air superiority over, on and under the waters surrounding the British Isles and along the sea lines of communication. Retaining a firm position in the Middle East was essential to prevent the Soviet Union from infiltrating into Asia and Africa and the loss of vital oil supplies. The control of sea communications through the Mediterranean was therefore particularly crucial to allow the quick deployment of forces for the defence of the Middle East and to obtain rapid assistance from the United States. Moreover, the enemy would be confined to the land and prevented from obtaining a foothold in North Africa.

The naval forces required on the outbreak of war included ten fleet carriers, capable of operating all modern types of aircraft, and twenty-five light fleet carriers for the direct control of sea communications. Since the chief threat to Britain's sea communications in other parts of the world was considered to be from submarines, air attack and mining, the main focus of naval research and development policy was to be Anti-Submarine Warfare, Anti-Aircraft Warfare and Mine Warfare.

The Overall Strategic Plan is significant in British defence planning during this period, not least of all because it is testimony to Britain's growing doubts about her ability to resist aggression alone and the likelihood of having to rely on American assistance in a future war. It was an unsettling realization for many within Whitehall at this time for, as Andrew Pierre has noted, some officials remained suspicious of American intentions and even felt betrayed by the United States. The termination of Anglo-American collaboration in atomic research and development following the McMahon Act, the end of lend-lease and the discontinuation of the wartime combined boards 'seemed to suggest a maxim for future British policy: the nation's security inasmuch as possible should not be allowed to become totally dependent upon the United States.'[22]

A considerable degree of uncertainty based on past experience therefore remained about just how quickly American support could be expected in war and there was as yet no firm guarantee from the Americans on this point. The Chiefs of Staff had reluctantly accepted that 'there may be a delay before the United States enter the war on our side' and that reliance on American aid 'could involve a risk during the early months.'[23] Thus, while John Cunningham, the First Sea Lord, was fully cognizant of the fact that if the Soviet Union overran Europe, Britain's ability to continue the war would depend on American assistance, he nonetheless argued that any cooperation with the United States 'should not sacrifice their ability to fight a war independently of each other and of other allies.'[24]

It would be wrong, however, to create the impression that the Admiralty were in any way reluctant to cooperate with the United States, or to seek standardisation in strategy, tactics, weapons or equipment with them. As was emphasised in the previous chapter, the

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22. Andrew J. Pierre, *Nuclear Politics. The British Experience with an Independent Strategic Force 1939-1970* (London: Oxford University Press, 1972), 76.
23. JP (47) 71 'Future Defence Policy - Target Forces', 2 June 1947, DEFE 6/2.
24. COS (47) 45th Meeting, 26 March 1947, DEFE 4/3.

cooling in Anglo-American political relations after World War II was not reflected in the relationship between the two countries military establishments, who were eager for wartime cooperation to continue in the postwar period. In July 1945, for example, the British Admiralty held informal discussions with the United States Navy to investigate the possibility of future cooperation in naval research and development.[25] The evolution of a common strategic doctrine would also help to remove some of the last vestiges of doubt about American intentions in a future war with the Soviet Union.

Even more crucially, it would help alleviate some of the Admiralty's financial burden in trying to maintain a fleet large enough to allow Britain to fight unaided for a time before outside help was required. In the wake of the Sterling crisis in the summer of 1947 and the failure of the services to reduce the annual defence budget to £600 million, a more restrictive definition of the ten year planning assumption had been applied by the MOD. This time the risk of war was definitely ruled out for the next five years and would only gradually increase in the next five; if attacked, the services would have to fight with what they already had and only those forces affording the best chance of survival and the greatest deterrent value were to be built-up.[26]

A new annual limit of £700 million was eventually agreed, but not before a series of hard-hitting cuts in the defence establishment were made. The strength of the Royal Navy was reduced to 147,000 in 1948/49 and the total naval estimates to £153 million.[27] Resigned to the inevitable, the Admiralty concluded that 'the proposed cut in fleet numbers must be faced' and over the course of the next few months, much of the active fleet was laid up.[28] By the end of 1947, the Home Fleet deployed just one cruiser, two

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25. Memorandum to Deputy COS Committee from Assistant Controller (R&D), 10 July 1945, ADM 1/22331; DCOS (45) 41 'Informal Discussions Between the Admiralty and Navy Department - Report by Assistant Controller (R&D), 18 July 1945, DEFE 7/284.
26. COS (47) 178, 23 August 1947, DEFE 5/4.
27. DO (47) 22nd Meeting, 29 September 1947, CAB 131/5.
28. Board Minute 4182, 1 October 1947, ADM 167/128.

destroyers, six frigates and twenty submarines.[29] The South Atlantic, West Indies and American stations had one cruiser and two frigates each, while the British Pacific Fleet consisted of two heavy cruisers, one light cruiser, four destroyers, four frigates and three submarines. Only one carrier, the light fleet carrier HMS *Triumph*, was in operation with the Mediterranean Fleet.[30]

Indeed, the long-term future of naval aviation within the postwar fleet was arguably never more uncertain, both in terms of its composition and its role in warfare. In November 1947, the Board had approved the programme of reconstruction recommended by the Oliver Committee on the modernization of existing carriers. All six fleet carriers, six *Colossus* light fleet carriers and two *Majestic* light fleet carriers were to be modernised, and a further four *Majestic's* under construction completed to a modernised standard to enable them to operate the next generation of high-performance aircraft. The estimated cost of the programme was £23 million over the next seven to eight years.[31] However, amidst the cuts of 1947 the Admiralty's concern about the cost of the programme meant the report was not actually presented to the Cabinet Defence Committee until June 1948.[32]

The role of naval aviation within Britain's defence plans was also in a state of flux. From the initial postwar naval plans, which assumed that the carriers and their aircraft

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29. Compared to the total cut in fleet numbers suffered by the Home Fleet in 1947, the figure of twenty submarines appears relatively generous. This reflected the belief that, in a future war, the United Kingdom would be particularly vulnerable to a Soviet seaborne offensive, including submarines and air attack. As the first - and most fundamental - of the three pillars on which the Overall Strategic Plan was based, the defence and development of the UK as an offensive base was regarded as a basic requirement of Britain's future defence strategy. The Admiralty's original plans under the OSP called for two battle forces, one for the Home Waters, the other for the Mediterranean and included eighty submarines - forty for Northern Waters, twenty for the Mediterranean and twenty for training. JP (47) 67 'The Future Shape and Size of the Armed Forces', 19 May 1947, DEFE 6/2; JP (47) 55 in DEFE 6/2.

30. Grove, *Vanguard to Trident*, 37.

31. Carrier Modernization Programme', Paper B533, 17 November 1947, ADM 167/129; Board Minute 4195, 21 November 1947, ADM 167/128.

32. 'New Construction and Modernization of Aircraft Carrier, Paper B560, 2 June 1948, ADM 167/131.

would fulfil both defensive and offensive tasks, the Royal Navy was now charged, in the Overall Strategic Plan, with the primarily defensive role of protecting the sea lines of communication. While the plan had emphasised the development of a strategic air offensive capability, it was not yet clear what role, if any, naval aviation would play in such an offensive. As a result, by the end of 1947 the Naval Air Staff were 'hung up for the lack of any overall plan to which to work.'[33] Both the Plans Division and the Fifth Sea Lord pressed for a long-term policy for naval aviation, so that decisions or detailed plans for future manpower requirements, aircraft production programmes and the modernization of carriers could be worked out.[34] However, since no analogous document had yet been issued on the future long-term policy for the postwar fleet as a whole, the Board decided to defer decision on a separate policy for naval aviation.[35]

## II. American Naval Planning, 1945-47

One of the first things to note about American defence planning during the early postwar period was the absence of any central direction in military planning. In particular, there was a notable lack of presidential guidance. During World War II, President Roosevelt had been suspicious of any centralized authority that might commandeer responsibility for the decision-making process from him and had not authorized any body to direct postwar defence policy.[36] As a result, there was no agency in the United States comparable to the Post-Hostilities Planning Staff in Britain. The lack of administrative guidance in postwar strategic planning was not greatly improved

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33. Letter from FSL Cunningham to the Secretary of the Navy, 8 May 1947, ADM 205/67.
34. 'The Future of Naval Aviation', 6 March 1947; memorandum by Fifth Sea Lord to First Sea Lord, 2 June 1947, ADM 205/67.
35. Board Minute 4166, 2 June 1947, ADM 167/128.
36. Michael Sherry, *Preparing for the Next War. American Plans for Postwar Defense, 1941-1945* (New Haven/London: Yale University Press, 1977), 22.

with the inauguration of a new President in April 1945. As David Rosenberg has noted, President Truman was generally reluctant during his presidency to promote wholesale military planning, fearing it would encourage the service planners to consider all too readily the use of the atomic bomb in war, a weapon he considered to be used only in the last resort.[37] In fact, there was no clear expression of American policy as a guide to strategic planning until the publication of NSC 20/4 in November 1948.[38]

Throughout the early postwar period, the Joint Chiefs of Staff were therefore largely left to formulate their own estimates and analyses of future defence requirements. There is, however, some debate as to just how effective the JCS were in filling the gap left by the lack of Congressional or administrative leadership in defence planning. While some historians argue that as a result of this gap military planning took place in a vacuum and intensified inter-service rivalry,[39] others claim that, through informal and formal contact with administration officials, the JCS were reasonably well informed as to the opinions of the political leaders, thus partially compensating for the lack of a clear foreign or defence policy.[40]

Assessing the degree to which the views of the JCS on defence policy did or did not coincide with those of the political administration is hard to quantify since the views of the latter were not made clear until the late 1940s. What is apparent, however, from examining the work of the JCS during World War II, is that the Joint Chiefs were also remiss in providing guidance to the services on post war defence policy. Their 'unwritten rule of unanimity' made decision-making a controversial process while the

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37. Rosenberg, 'Origins of Overkill', 11 & 'Reality and Responsibility: Power and Process in the Making of United States Nuclear Strategy, 1945-1968', *Journal of Strategic Studies*, vol. 9, no. 1 (March 1986), 38.
38. NSC 20/4 'U.S. Objectives with Respect to the USSR to Counter Soviet Threats to U.S Security', 23 November 1948, reproduced in Etzold & Gaddis, *Containment*, 203-211.
39. Baer, *One Hundred Years of Sea Power*, 294.
40. Steven T. Ross, *American War Plans 1945-1950* (London: Frank Cass, 1996), 4.

demands of winning the war already in hand tended to occupy most of their energies.[41] In fact, only once during the war, in July 1943, did the JCS attempt to establish any guidelines for postwar military policy.[42] As a result, the individual services undertook the formulation of their own postwar policies with the consequence that there was little cooperation and much competition between them.

Indeed, the United States Navy's first postwar plans, produced during the course of 1943, were prompted initially by the desire to head off the apparent lead of the Army and Air Force in the jostle for postwar support, rather than the need to equip the navy with a feasible postwar strategic concept. The plans included provision for a minimum of twelve large carriers and twenty smaller carriers, 5,000 aircraft, 825,000 men and an annual budget of $7 billion.[43] No statement of the USN's postwar mission, either in terms of the tasks for which they were to be responsible or possible future enemies, was included. The plans, like early British postwar naval plans, were therefore large and unrealistic, and reflected the USN's desire to keep intact - at least for the immediate future - its sizeable wartime fleet. As in Britain, the emphasis was more on preparedness than on the need for a realistic strategy.

The USN's most comprehensive attempt at formulating a postwar plan before the end of World War II was the 'Basic Postwar Plan No. 1', produced in May 1945.[44] The plan assumed that the United States would become involved in future wars again and that the best means to deter war, or wage it, was to maintain strong military forces. The USN would therefore need strong, balanced forces, capable of fulfilling a variety of roles. The Fleet would operate primarily in the Western Atlantic and Pacific, built around five Carrier Task Forces (CTF) - two in the Atlantic and three in the Pacific,

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41. Sherry, *Preparing for the Next War*, 21.
42. Ibid., 22.
43. Ibid., 33.
44. 'Basic Post-War Plan No. 1', 7 May 1945, COMINCH/CNO, WWII Command File, Operational Archives Branch [OAB], Naval Historical Centre, Washington, D.C.

although it would be flexible enough to move wherever it was needed. A total of nine large carriers were required, with a total strength of 660,000 personnel and an annual budget of $3 billion.

Although the USN now seemed to have identified a postwar mission for itself - that of global policeman - this was expected to last only until the United Nations Organisation became fully effective. The Plan still made no reference to any specific long-term potential enemy. Moreover, there was a contradiction within the plan itself. While emphasising that the fleet was able to move 'to any part of the world in support of our national policies', the plan nevertheless maintained the navy's traditional orientation towards the Western Atlantic and Pacific. Despite pursuing a 'Europe First' strategy during the Second World War, the navy's planners had not yet fully conceived of a role for the USN in postwar Europe, or considered how naval power could effectively be applied against such a landmass.[45] The plan therefore represented, in Samuel P. Huntington's celebrated phrase, the 'Oceanic Phase' of American naval history which began in the 1890s and emphasised gaining command of the seas and destroying enemy fleets, rather than the 'Transoceanic Phase' of the post-World War II period, where the goal was to orientate the navy away from the oceans and towards the Eurasian continent.[46]

Without a relevant postwar plan, the role that the United States Navy envisaged playing in a future war also closely resembled that fought in World War II. The potential for carrier aviation to be used against land targets, beyond launching limited offensives against naval bases and ports in support of traditional sea control duties, had not yet been assessed. As a result, destroying enemy naval and air forces at sea, supporting amphibious operations and reconnaissance remained the dominant paradigm

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45. Sherry, *Preparing for the Next War*, 93.
46. Samuel P. Huntington, 'National Policy and the Transoceanic Navy', *United States Naval Institute Proceedings*, vol. 80, no. 5 (May 1954).

for naval aviation in 1945.[47] Like British naval planning at this time, 'the lessons of the past, more than the challenge of the future' dominated US naval thinking and by the end of the war, the USN still lacked a realistic postwar concept.[48]

Developing a practicable postwar naval doctrine was made much easier once the Soviet Union had been identified by the JCS as the most likely future enemy of the United States. As Michael Sherry's study on American plans for postwar defence reveals, between 1941-45 military planners had no fixed views on future Russian intentions or capabilities. That the Soviet Union would emerge from the war a major world power was recognised by the JCS in May 1944, and while there was some anxiety over potential Communist expansion in Europe after the war, it was not felt that this was fuelled by some latent desire for world domination or that the Soviet Union were inclined towards future conflict with the United States, at least until Russian economic recovery was complete, probably sometime after 1952.[49]

However, by the end of World War II, a number of events soon prompted the JCS to begin codifying their views on postwar United States-Soviet Union relations. The installation of so-called 'friendly governments' in Rumania and Bulgaria by the Soviet Union and their 'settlement' of the German-Polish border issue by transferring twenty-one per cent of German territory to the pro-Communist Lublin Government seemed to herald the breakup of the Grand Alliance. The advent of the atomic bomb in warfare also demanded that a less equivocal view on the postwar strategic environment be asserted.

The result was the 'Strategic Concept and Plan for the Employment of the United

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47. See David Alan Rosenberg, 'American Postwar Air Doctrine and Organization: the Navy Experience' in Alfred F. Hurley & Robert C. Erhart (eds.), *Air Power and Warfare. Proceedings of the Eight Military History Symposium, USAF Academy 1978* (Washington: Office of Air Force History, Headquarters USAF & USAF Academy, 1979), 247.
48. Richard G. Hewlett & Francis Duncan, *Nuclear Navy 1946-1962* (Chicago: University of Chicago Press, 1974), 14.
49. Sherry, *Preparing for the Next War*, 164; JCS Information memo 374, 4 February 1945. Quoted in Ross, *American War Plans*, 4.

States Armed Forces', issued in September 1945.[50] The peacetime responsibilities of the US armed forces were stated as upholding national policies and the 'maintenance of world peace.' Significantly, the latter was still a duty that the Americans envisaged doing alone. With the decline of Britain as a military power, if not a future ally, the possibility existed that the United States 'be so prepared that if necessary we can maintain our security without immediate or substantial assistance from other nations.' The JCS also had serious misgivings about the ability of the United Nations, under its present charter, to assist in the policing of world affairs or to take military action against an aggressor.[51]

Since advances made in the power and range of modern weapons had reduced the degree of invulnerability to attack provided by the United States geographical position, it was imperative that war be prevented by maintaining sufficient military power 'to make it unwise for any major aggressor nation to initiate a major war against the opposition of the United States'. However, should deterrence fail, and an attack appear imminent, it was considered that a preventive war was justified and that the US should 'strike the first blow if necessary.' It was assumed that the most likely cause of war would be an attempt by the Soviet Union to overrun Western Europe or China, and that Britain would be the most likely ally. The overall objective of the United States was 'to enlarge our strategic frontier', both in terms of keeping the enemy at maximum distance from the United States and in projecting power outward, from a series of strategically located forward bases. In keeping with the shift from a traditional policy of passive defence to one of active defence, the study called for rapid action by mobile air and seaborne striking forces, including the use of atomic weapons, to destroy the enemy's war-making capacity. Upon the insistence of Admiral King, the Chief of Naval Operations (CNO), this was later amended to include the 'early destruction of [the Soviet Union's] naval forces and shipping without which he would be unable effectively to support his

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50. JCS 1518 'Strategic Concept and Plan for the Employment of United States Armed Forces', 19 September 1945, Chief of Naval Operations Secretariat, JCS File, OAB.
51. Sherry, *Preparing for the Next War*, 203.

overseas bases or land forces on our shores.'[52]

The identification of the Soviet Union as America's most likely future enemy was a boon to the Secretary of the Navy, James V. Forrestal, who had been one of the most vocal advocates of the US adopting a firm anti-Soviet line in foreign and defence policy since his appointment in April 1944. Even before the end of the war, Forrestal and his supporters in the navy had privately begun to prepare plans for a possible war with the Soviet Union, predicating the need for a large powerful navy on this assumption. As chapter two demonstrates, however, such views had conflicted sharply with those of the administration, which was not yet ready to jettison all hopes of continuing in peacetime the cooperation that had been fostered in wartime. As a result, the navy had not been able to publicly name the Soviet Union as an adversary to peace.[53]

Once the Joint Chiefs of Staff had formally endorsed such thinking - even if it remained anathema to the politicians - Forrestal's anti-Soviet focus now provided the USN, as Michael Palmer puts it, with the 'relevant parameters' within which to begin preparing an adequate postwar naval plan.[54] The 'Basic Post War Plan No. 1', for example, was re-evaluated and revised and now considered unilateral action against the Soviet Union to be the most likely conflict in the future. The new emphasis on forward, offensive operations also encouraged navy planners to move beyond the 'oceanic' nature of the first Post War Plan to consider fighting the Soviet Union on land as well as at sea. What was needed was 'a well balanced force...capable of effecting a landing and occupying territory against land based air and ground opposition.' The number of carriers and amphibious vessels required was therefore to be increased, and now included thirteen large carriers.[55]

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52. King to JCS, 1 October 1945. Quoted in Palmer, *Origins of the Maritime Strategy*, 21.
53. Palmer, *Origins of the Maritime Strategy*, 19-20.
54. Ibid., 12.
55. Basic Post-War Plan No. 1A, 14 December 1945, COMINCH/CNO, WWII Plans File, OAB; Palmer, *Origins of the Maritime Strategy*, 14.

In attempting to define a new naval doctrine for the postwar period, however, the USN faced considerable resistance from its opponents, particularly in the ongoing debate over service roles and missions. The debate was part of a much wider general discussion on the unification of the services that had begun during World War II and gained renewed momentum at the end of the war, as public and congress alike pressured to see a reduction in the size of both the defence budget and the military establishment. Critics of the USN, particularly those proponents of an independent air force, questioned the need for a navy at all after the war:

> Why should we have a Navy at all? The Russians have little or no Navy, the Japanese Navy has been sunk, the navies of the rest of the world are negligible, the Germans never did have much of a Navy. The point I am getting at is, who is this big Navy being planned to fight? There are no enemies for it to fight except apparently the Army Air Force. In this day and age to talk of fighting the next war on the oceans is a ridiculous assumption. The only reason for us to have a Navy is just because someone else has a Navy and we certainly do not need to waste money on that.[56]

Moreover, the increasingly popular idea that the services should be organised on the basis of weapons systems and the physical environment in which they moved led some to suggest that the Army Air Forces should take over carrier aviation and the Army the Marine Corps, leaving the navy to perform patrol and support duties.[57] Such ominous judgments on the future roles and missions of the USN appeared to be confirmed by the report of the Joint Strategic Survey Committee (JSSC) on 'Missions of Land Sea and Air Forces' in February 1946.[58] The report concluded that:

> primary missions can be assigned each force, determined principally by the element in which it normally operates...Thus the Army's missions are concerned mainly with the destruction of enemy forces on land, occupation of his territory and the defense by land of our territories; the Air Force's with the destruction of

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56. Unnamed Army Air Force officer, quoted in Huntington, 'National Policy', 484.

57. Baer, *One Hundred Years of Sea Power*, 275-277.

58. JCS 1478/8 'Missions of Land, Sea & Air Forces', 20 February 1946, MF 30/0173, Records of the Joint Chiefs of Staff, Part 2: 1946-53, Strategic Issues 2, LHCMA.

> enemy forces (land, air and sea) from the air, the razing of enemy industrial establishments...and air defense; the Navy's with the destruction of enemy naval forces and commerce and protection of our shipping.

Ostensibly, the chief *raison d'être* of the report was to decide whether the USN should be allowed to maintain and operate land-based aircraft for reconnaissance, ASW and supporting amphibious operations. However, the real issue at stake was responsibility for the control of nuclear weapons and the Air Force belief that the navy wanted to assume control for strategic air operations. Faced with the irony at the end of World War II that they were now the world's largest navy but with no other navy to prepare against and under increasing pressure to find new roles and missions for itself, the USN had begun to question what use it could make of the atomic bomb in war. In November 1945, the Special Weapons Division (OP-06) was therefore established to investigate the military application of atomic power and its adaptation for naval use. In December, the development of the 41,000 lb AJ-1 Savage nuclear-capable attack bomber was authorised by the CNO, followed in July 1946 by the President's approval to modify the three *Midway* class carriers to operate them.[59] Moreover, in his annual report to the Secretary of the Navy in December 1945, Admiral King had emphasised the role of the navy against land targets.[60]

The USN denied that they were aiming to usurp the functions of the Air Force in strategic air warfare. 'The Navy does not contemplate,' argued Vice Admiral Arthur Radford, Deputy CNO for Air (OP-05), 'the creation of a land based strategic bombing command; developing a land-based fighter force for the defense of the United States or of major outlying bases [or] building a tactical air force for land campaigns.'[61] It is

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59. Friedman, *US Aircraft Carriers*, 233, 244. All three Midway class carriers were modified to operate atomic aircraft. The modification of *Coral Sea* was completed in 1947, *Franklin D. Roosevelt* in early 1948 and *Midway* in November 1948.
60. Baer, *One Hundred Years of Sea Power*, 286.
61. Memorandum by Radford, 28 March 1946, contained in JCS 1478/12 'Missions of the Land, Sea and Air Forces', memorandum by CNO, 30 March 1946, MF 30/0211, Records of the Joint Chiefs of Staff, Part 2: 1946-53, Strategic Issues 2, LHCMA.

almost certainly true, as David Rosenberg has argued, that the navy were not at this time aiming to achieve a carrier-based strategic bombing capability and there is no evidence to suggest otherwise.[62] However, the identification of the Soviet Union as the most likely future enemy of the United States certainly had stimulated naval thinking on the potential uses of carrier air power in war. In particular, carrier aviation now meant that the USN need not be restricted to the seas anymore and could have a new role for itself in striking targets deep inside the Soviet land mass, using both conventional and atomic weapons. What the Air Force critics of this new concept failed to appreciate, however, was that the USN's understanding of forward, offensive operations differed substantially from their own.

In the first instance, the Air Force and navy entertained widely different ideas about the value of atomic weapons in the postwar period. While the Air Force believed that the advent of atomic weapons now made strategic air power decisive in war and rendered conventional forces obsolete, the navy argued that they were only one important element of the overall military posture and did not think that they would necessitate any major changes in naval forces for the next ten years. Moreover, since delivery of atomic weapons had to occur over the seas, the USN argued that both the defence against the bomb and the use of it would still require naval superiority.[63] The views of the USN were supported by the JSSC report on the 'Overall Effect of Atomic Bomb on Warfare and Military Organization' in October 1945, which concluded that the advent of atomic weapons did not yet justify the elimination of conventional armaments or major modification to the services.[64]

When translated into doctrine, the USN's views on how atomic weapons should be deployed in war were therefore entirely different from those of the Air Force, and even

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62. Rosenberg, 'American Postwar Air Doctrine', 249.
63. Jeffrey Barlow, *Revolt of the Admirals. The Fight for Naval Aviation, 1945-1950* (Washington, D.C: Naval Historical Centre, 1994), 80; Sherry, *Preparing for the Next War*, 207-208.
64. Sherry, *Preparing for the Next War*, 208.

the JCS. The Air Force view was that atomic weapons were primarily for use against Russian urban and industrial areas. A report by the Joint War Plans Committee on the US military position in January 1946, for example, listed seventeen cities in the Soviet Union for attack by atomic bombs, and included industrial facilities, factories and government centres as targets.[65] The navy, however, remained sceptical about the effectiveness of strategic bombing in stopping a Soviet offensive in Eurasia. They doubted the ability of the Air Force's B-29 bombers to penetrate the Soviet Union and reach their targets and did not think that a strategic air offensive would be enough to end the war. It would still be necessary to defend Western Europe with ground forces and maintain naval forces to control the sea and air lines of communication to the continent.[66] Moreover, given the limited stocks of atomic bombs at this time - the US nuclear stockpile numbered only nine in July 1946 - there was some doubt as to whether atomic weapons would be available at all in a future war.[67]

In light of these misgivings, the USN's views on the use of atomic weapons drew more heavily on the experience gained during World War II, where air attacks on specific targets had proved much more effective in destroying Germany's war-making capacity than the widespread bombing of urban areas. They saw both atomic and conventional bombs more as tactical rather than strategic weapons. Instead of performing indiscriminate bombing missions against Soviet industrial and population centres, the USN favoured striking key land targets from forward deployed carrier task forces. As Rear Admiral Ralph Ofstie, the USN's representative on the Military Liaison Committee to the Atomic Energy Commission, argued in early 1948:

> the target system attack...is most effective and far more economical when using bombs against a modern industrial nation [than strategic area bombing]. Such an

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65. JWPC 416/1 'Military Position of the United States in the Light of Russian Policy', 8 January 1946, MF 159/0485, Records of the JCS, Part 1: 1942-45, Soviet Union, LHCMA.
66. Barlow, *Revolt of the Admirals*, 105, 110.
67. Rosenberg, 'Origins of Overkill', 14.

> attack is based essentially on precision...This is precisely the style of attack to which the smaller load carrying planes of the carrier forces are best adapted.[68]

The targets were intended to help the navy maintain command of the sea and included submarine pens, naval bases, ports and shipyards. Some historians have suggested that this doctrine of 'attack-at-source' was adopted by the navy purely to justify its participation in a future war and to make atomic strikes a naval mission.[69] However, as Norman Friedman has pointed out, the development of fast submarines, jet aircraft and guided missiles during the war encouraged the shift to the concept of 'attack-at-source' since each was so difficult to intercept near its target.[70] Thus, while the USN did aim to eventually add atomic weapons to the fleet, it was in a tactical 'attack-at-source' role, rather than as part of the strategic bombing offensive, that the navy were primarily interested.

The gradual emergence of a new naval doctrine which aimed at meeting the Soviet threat as far forward as possible and based on offensive carrier operations received greater clarification during the course of 1946 as the whole focus of America's strategic interests shifted away from the Pacific and the Western Atlantic and towards Europe and the Middle East. Indeed, American attitudes towards the Soviet Union hardened generally throughout 1946. The reluctance of many US officials to admit that Russia's behaviour could not be moderated through gestures of goodwill or compromise and that it was, in fact, attributable to fundamental ideological differences rather than internal political problems, had been jolted in February 1946 by the so-called 'Long Telegram.'[71] Written by George F. Kennan, *chargé d'affaires* at the American Embassy in Moscow, it argued that the Soviet Union's hostility originated in the need of

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68. 'The Fast Carrier Task Force', lecture by RADM R.A. Ofstie before the Navy Civilian Orientation Group, 23 March 1948, Ralph A. Ofstie papers, Series III, OAB.
69. Baer, *One Hundred Years of Sea Power*, 285.
70. Friedman, *Postwar Naval Revolution*, 9.
71. Moscow Embassy Telegram #511, or the 'Long Telegram' is reproduced in Etzold & Gaddis, *Containment*, 50-63.

its rulers to justify their totalitarian rule and not from anything the West had or had not done. The best way to resist the Soviets was not through direct confrontation but to build strong, stable communities invulnerable to their influence.

Kennan's telegram inspired the adoption of a new policy towards the Soviet Union, one of 'patience with firmness.'[72] Although diplomatic contacts would be maintained, the United States would not make any more concessions to the Soviets and in future would resist further Soviet expansionist moves. This new policy received its clearest expression in the 'Truman Doctrine' of March 1947, which declared that 'it must be the policy of the United States to support free peoples who are resisting attempted subjugation by armed minorities by outside pressures.'[73]

With the Soviet Union and its massive land forces now recognised to be America's most probable enemy, it was logically assumed that Eurasia would be the most likely arena for future conflict. A report by the Joint Planning Staff (JPS) in March 1946, for example, stressed that the defeat of Britain by Russia in the eastern Mediterranean would also seriously threaten America's national security since the military positions of two western powers were 'of necessity closely interwoven.'[74]

The Joint Chiefs of Staff first postwar concept for war against the Soviet Union therefore pitted the US and Britain against Russia in Eurasia.[75] War Plan 'Pincher' - a series of studies issued between March 1946 and September 1947 - assumed that war would begin by accident, arising from a local incident in the Middle East between Britain and the Soviet Union and expanding into a full scale war. The Soviets would undertake a two-pronged attack, overrunning Western Europe and much of the Middle East and Northern China. The allied occupation forces in Europe would only be able to delay the

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72. John Lewis Gaddis, *Strategies of Containment. A Critical Appraisal if Postwar American National Security Policy* (Oxford: Oxford University Press, 1982), 21.
73. Etzold & Gaddis, *Containment*, 49.
74. Quoted in Palmer, *Origins of the Maritime Strategy*, 22.
75. Ross, *American War Plans*, chapter II, contains the most comprehensive discussion of the Pincher plans.

Russian advance at the Rhine. The United States main effort in the war would be to establish bases in Britain, Egypt, India and possibly Italy, from which to launch the strategic air offensive - including the use of atomic weapons - against the Soviet Union's war-making capacity. In addition, the US Fleet would blockade the Soviet Union's ports, destroy their merchant ships and neutralize the submarine bases. Allied forces would then mount combined operations through the Mediterranean and the Persian Gulf to strike against the industrial regions of the southern Soviet Union. Only a defensive posture would be assumed by the allies in the Far East.

The naval component of Pincher was designed by Vice Admiral Forrest Sherman, DCNO for Operations (OP-03).[76] In the initial defensive stages of a war with the Soviet Union, the USN would be responsible for covering the evacuation of allied occupation forces in Europe and Korea, defending the forward bases in the British Isles, Iceland, the Azores, the Cairo-Suez area, the Aleutians, Japan, the Ryukyus and the Philippines, and keeping open the sea lines of communication to these bases by controlling the North Atlantic, Mediterranean and Western Pacific.

These tasks called for forward, offensive operations which, given the limited availability of atomic bombs, would be conventional in the initial stages. The Eastern Pacific carriers would be redeployed to the Atlantic, leaving just one carrier task force in the Western Pacific. Naval operations would concentrate on the Eastern Mediterranean to try and keep Turkey in the war. To counter the Soviet submarine threat and defend shipping against attack by land-based aircraft, naval forces would attack-at-source, against Soviet ports, naval bases, airfields, factories and shipyards. Carrier operations would focus on the Mediterranean, North Sea, Barents Sea and the Sea of Japan, working in cooperation with the US Air Force.

By 1947, the contours of the United States Navy's new postwar naval doctrine were therefore clearly discernible. War Plan Pincher had provided the first indication of the

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76. See for example 'Conference with Op-03 on War Planning', 7 June 1946, A16-3(5), Box 107, OAB; Palmer, *Origins of the Maritime Strategy*, 31-34.

navy's new mode of thinking and during the course of 1947, the concept was outlined in more explicit terms. In January, Sherman presented the navy's strategic concept to President Truman.[77] In a major war, the Soviet Union would overrun Germany, France, Belgium, Holland, Denmark, the Scandinavian peninsula and possibly Spain, while attacking Britain with aircraft, rockets and guided missiles. The Soviet Union would also attempt to seize the Middle East and its oil resources and occupy Turkey, Greece and Italy to control the Mediterranean and the Suez Canal. The US would be forced to withdraw its forces to Spain, Britain or North Africa to begin the mobilization and build-up for an eventual return to the continent.

While the allies would be on the strategic defensive in the initial stages of the war, the USN would immediately assume the offensive to secure sea communications, support overseas forces and disrupt enemy operations. Carrier Task Forces would strike targets at sea and ashore to cover the withdrawal of forces from both the Far East and Europe and to retard Soviet advances into Norway, Spain, Italy, Greece and Turkey. US submarines would conduct forward operations in the Far East, White Sea, Black Sea and Baltic to bottle up Russian forces. During the remainder of the war, the carriers would continue their offensive action, assisting the counteroffensive against the Soviet Union through the Mediterranean. Four CTF built around sixteen carriers were required to accomplish the navy's missions.

A more detailed study of carrier offensive capabilities was conducted by the Strategic Plans Division (OP-30) in March 1947.[78] The planners concluded that the carriers would be able to operate effectively despite numerically superior Soviet air power. Moreover, with their greater bombing precision, carrier aircraft could be more effective than land-based aircraft, particularly since there may be a lack of overseas air bases in a war with the Soviet Union. Mobile carrier air power could thus target Soviet

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77. Presentation to President, 14 January 1947, no. 26, box 8, Sherman Papers, OAB.
78. NSPS 3 'Study of Carrier Attack Force Offensive Capabilities', 7 March 1947, Box 497, Strategic Plans Division Records, OAB.

air power and limited objectives ashore while awaiting the arrival of shore-based aircraft at forward bases. While the Pacific Fleet carriers would operate in the seas around Korea and Japan, the most important theatre would be the Mediterranean, where the carriers deployed from the US Eighth Fleet in the Atlantic could strike tactical targets within the Soviet Union.[79] A role in the Air Force-led strategic bombing campaign was therefore specifically ruled out, although it would be possible for a larger carrier to launch a heavy bomber, either conventionally or atomically armed, if no other force was available. The USN's main role in the strategic air offensive would therefore be to destroy enemy fighters around the Russian periphery. Under the USN's force projections for Plan Charioteer, a long-range war plan for conflict in 1955, the navy would require four four-carrier task groups, each containing one of the new 69,200 ton CVA-58 class carriers recently approved by Congress and a number of long-range bombers, including the nuclear capable AJ-1 Savage.[80]

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In the immediate postwar period, both Britain and America struggled to find a military posture that was appropriate to the new strategic environment. Before any future enemies, or for that matter allies, had been identified, early plans for postwar defence in both countries focused primarily on the need to maintain strong, independent forces, capable of resisting aggression alone. British and American naval plans, for instance, continued to emphasize the kind of roles and missions, in the same theatre of operations, as had preoccupied them during the Second World War and even earlier. As the strategic realities of the postwar period gradually became clearer however, the military establishments in Britain and the United States found their strategic assumptions

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79. The US Eighth Fleet had been established in January 1946 to provide a striking task force for rapid deployment to the Mediterranean. It was ordinarily stationed in the Atlantic.
80. Rosenberg, 'American Postwar Air Doctrine', 253.

increasingly challenged. British defence planners, under the pressure of fiscal retrenchment, were forced to acknowledge the need for the active and early support of the United States in war. The Royal Navy, for example, was unable to maintain a fleet large enough to allow Britain to fight unaided for a time before outside help was required and had assigned itself a primarily defensive role in war. Although a more proactive defence policy had been adopted in the United States, military planners were also forced to accept that America's ability to project power, in all parts of the world, was limited.[81] Defence plans had therefore begun to stress that Britain was America's most crucial ally.

Nonetheless, despite informal contacts between British and American defence planners, the relationship had yet to be more formally expressed and there was still a degree of uncertainty as to the intentions of either country in a war with the Soviet Union.[82] As 1948 dawned, however, the need for greater clarification of Anglo-American defence plans and the establishment of closer strategic relations became essential.

## III. From a National to a Western Strategy, 1948-1950

The year 1948 began inauspiciously. Fear of the Soviet Union's expansionist ambitions in Europe appeared to be realised when the Communists took over Prague in February. At the request of the Americans, the British Joint Planning Staff went to

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81. JCS 1769/1 'United States Assistance to Other Countries from the Standpoint of National Security', 29 April 1947, reproduced in Etzold & Gaddis, *Containment*, 71-83.

82. In late 1947, British and American planners had agreed upon a strategic concept should the Soviet Union invade Western Europe. The 'Dunkirk Talks', as they were known, agreed to a withdrawal of British and American forces if the Soviets invaded. The talks, however, were highly secretive and it is unlikely that either the Foreign Office or the State Department were aware of them. See Sean Maloney, *Securing Command of the Sea. NATO Naval Planning 1948-1954* (Annapolis, MD: Naval Institute Press, 1995), 56.

Washington in April to begin emergency short-term planning for a possible war against the Soviet Union. For the British, the American invitation was a timely one. With the establishment of the Western European Union (WEU) in March 1948, much debate had already taken place in the COS Committee on the most desirable strategy for the region.[83] Having agreed that a future war against the Soviet Union could not be successful without full American support, however, the COS had been unable to determine in any detail what the most appropriate strategic policy should be without knowledge of what contribution the United States would be prepared to make to the defence of Western Europe.[84] Moreover, the British hoped the meeting would provide an opportunity to influence American plans for long-term defence. In January, the Joint Intelligence Committee had concluded that the Soviet Union was unlikely to start a war deliberately before the end of 1956 while a directive issued by the Minister of Defence in February 1948 formally established 1957 as the date by which the armed forces should be ready for war.[85] The Chiefs of Staff thus responded enthusiastically to the US request for joint emergency war planning. Although Britain remained economically and militarily weak, they were eager to demonstrate to the Americans that they were 'in absolute earnest about fighting with whatever we had got.'[86]

The short-term emergency war plan agreed at the meeting - the British version of the plan was known as Doublequick and the American version as Halfmoon[87] - assumed a war against Russia beginning in 1949 in which the Soviet offensive would attempt to

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83. JP (48) 16 (Final) 'Discussions on Policy for Western Europe', 27 January 1948, DEFE 6/5.
84. COS (48) 15th Meeting, 30 January 1948; 16th Meeting, 2 February 1948 & 18th Meeting, 4 February 1948, DEFE 4/10.
85. COS (48) 14th Meeting, 28 January 1948; 'Special Military Branch Acquaint 3279', 19 February 1948, ADM 116/5966; COS (48) 52nd Meeting, 14 April 1948, DEFE 4/12.
86. COS (48) 55th Meeting, 21 April 1948, DEFE 4/12.
87. JP (48) 48 (Final) 'Plan Doublequick', DEFE 6/6 is still classified, unlike the American version of the plan, JCS 1844/4, 'Brief of Short-Range Emergency War Plan 'Halfmoon'', 6 May 1948, Ross, *American War Plans*, 90-94. The strategic concept outlined in Plan Halfmoon drew heavily on an earlier US war plan, JSPG 496/1 'Plan Broiler', 8 November 1947, especially in its reliance on atomic, as opposed to conventional, forces. Ibid., 61.

overrun Western Europe, seize the Middle East and its oil resources, 'neutralize' the United Kingdom as a base area, conduct limited operations in the Far East to expand the Soviet Union's position in China and Korea and to divert allied forces from Europe, and disrupt allied lines of communication by submarine warfare, mining and air operations.

The Anglo-American plan was to concentrate their efforts in western Eurasia and maintain only a strategic defensive in the Far East. Initial operations included conducting a fighting withdrawal from Europe;[88] securing the British Isles, Japan and Cairo-Suez as strategic bases from which to launch an air offensive with atomic weapons against the Soviet Union's war-making industries; and establishing air and naval bases in Iceland and the Azores. In the Mediterranean, four USN carriers and four British light fleet carriers would protect the line of communication; but if the Soviets closed the route, they would establish a new line of communication via the Cape of Good Hope and the Red Sea. Disagreement between the USN and USAF on whether carrier air power should take part in the strategic bombing mission resulted in a split decision in the final plan, with the latter arguing that it was exclusively an air force mission.[89] The precise application of the attack-at-source doctrine in a war against the Soviet Union, as outlined in both the Pincher War Plan and Sherman's presentation to the President, therefore remained unspecified.

Throughout the summer and autumn of 1948, the need to develop even closer strategic relations became imperative for both Britain and the United States. The Communist takeover in Prague in February had been followed by the Soviet Union's blockade of the western zone of Berlin in June. In Britain, the economic situation had still not improved and the COS and MOD began issuing warnings that the armed forces 'in their present state are not in a position to fight with what we have got', and 'unless

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88. The British version of the plan was revised to eliminate any mention of the withdrawal of forces from Europe. With the recent establishment of the West European Union, the British Chiefs of Staff felt that 'it would clearly be fatal to the W[estern] U[nion] to start on the basis of withdrawing the Allied Forces in an emergency.' COS (48) 64th Meeting, 10 May 1948, DEFE 4/13.
89. Ross, *American War Plans*, 93-94.

certain steps are taken immediately to improve the state of preparedness of the armed forces the United Kingdom would be virtually defenceless.'[90] The Royal Navy, for instance, was deficient in experienced manpower and equipment and its ability to carry out its role efficiently in war was also jeopardised by a severe shortage of fuel. In July 1948 there was enough to fill up the reserve fleet and refuel the total fleet just once and there was only enough aviation fuel for thirty-two days of war operations.[91]

With the deteriorating international situation, certain measures were approved by the Cabinet to improve the operational readiness of the armed forces. Releases from the services were suspended for three months, national service was increased from twelve to eighteen months and the '5+5' planning assumption was recommended for revision on the grounds that it was 'no longer safe to assume that the risk of an accidental war in the next five years is small.'[92] The decision was also taken to transfer American B-29 strategic bombers to bases in Britain, marking a 'shift towards recognition of dependence upon the American nuclear deterrent.'[93] An increase in defence expenditure from £700 million to £760 million for 1949/50 was authorised to help meet the deficiencies. Nonetheless, the Navy's share of £190 million was still far below the £220 million the Admiralty had scheduled for the first year of its 'Nine Year Plan', designed to bring the fleet to a state of readiness by 1957.[94] The programme, which included provision for eight fleet and twelve light fleet carriers and a front-line establishment of 300, including the new Sea Hawk jet fighter and Gannet ASW aircraft, was therefore postponed for at least a year, with little expectation that the Naval Estimates would rise

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90. DO (48) 49 'Preparation for Defence', 29 July 1948, CAB 131/6; DO (48) 14th Meeting, 30 July 1948, CAB 131/5.
91. DO (48) 46 'The Defence Position', 26 July 1948, CAB 131/6.
92. DO (48) 17th Meeting, 23 August 1948, CAB 131/5; JP (48) 93 (Final) 'Basis for Planning the Armed Forces', 26 August 1948, DEFE 6/6.
93. Pierre, *Nuclear Politics*, 79.
94. 'Long Term Production Estimate, Paper B559, 26 June 1948, ADM 167/131.

above £190 million before 1952/53.[95]

By the autumn of 1948, the inescapable reality, as described by the Foreign Secretary, Ernest Bevin, was that:

> the United Kingdom could not contemplate embarking single-handed on a war against the Soviet Union. It was therefore essential that all concerned, and particularly the United States, should realise that such a war would be primarily a United States undertaking and that the role of the United Kingdom would be bound to be subsidiary.[96]

In the United States, budgetary considerations were placing similar restraints on the ability of the armed forces to balance their increasing commitments with their reduced resources; as in Britain, 'retrenchment rather than rearmament was a permanent feature of government defence policies.'[97] In June 1948, for example, the General Board of the Navy produced a report on 'National Security and Navy Contributions Thereto for the Next Ten Years', scrutinising the USN's role in postwar national defence.[98] The report emphasised a wide range of duties that the navy would need to fulfil in a war. Unlike earlier statements, the Board placed less emphasis on the USN's participation in the strategic air offensive - doubtful as they were about the ability of atomic weapons to bring about the Soviet Union's capitulation - although they did continue to stress the crucial role carrier air power could play in the first few days of war when there may be no other striking power capable of retarding the Soviet advance in Europe. Instead, the Board argued that control of the seas and other conventional operations were also vital to the United States war effort. The next war, for example, 'will likely demand much increased emphasis on antisubmarine warfare', particularly against the Soviet submarine fleet in the Atlantic, and this would be the USN's primary role. The next 'Battle of the

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95. 'Navy Estimates 1949/50', Paper B577, 1 January 1949, ADM 167/133; 'Revised Restricted Fleet for 1957', 10 January 1949, ADM 205/71.
96. DO (48) 13th Meeting, 27 July 1948, CAB 131/5.
97. Ross, *American War Plans*, 79.
98. 'National Security and Navy Contributions Thereto. A Study by the General Board', 25 June 1948, Folder A1/2, Organizational Research & Policy Division [OP-23], OAB.

Atlantic', however, would be won by projecting power on to the continent and the USN's carrier task forces would thus be responsible for destroying and blockading enemy submarine bases by both atomic and conventional bombing and mining. Other carrier missions included supporting amphibious assaults, providing air cover for land forces and convoys and contributing to the air offensive by attacking targets not otherwise reachable by land-based forces.

However, there was serious cause for concern over the USN's current capabilities in meeting all of these requirements. The ability of the navy to carry out its doctrine of forward, offensive operations was questionable. 'The Navy's initial tasks', the report concluded, '...will place so many demands upon the Navy for immediate operations in widely separated parts of the world that fulfilment of all demands may well be beyond the capacity of the Navy in being.'

The USN's ability to meet all of its obligations in postwar defence policy was further called into question following President Truman's placement of a ceiling of $14.4 billion on the defence budget for Fiscal Year (FY) 1950. Throughout the Truman Administration, the navy's funding was subject to close scrutiny and had consistently fallen victim to the budget axe wielded by Congress. In FY 1947, the navy's proposal of $6.3 billion was reduced to $4.1 billion; in FY 1948 it was cut from $5.8 billion to $3.3 billion.[99] The limit of $14.4 billion for FY 1950 was well below the $21.4 billion that the JCS considered to be the optimum budget and inevitably, a heated debate ensued in the JCS on where the reductions should be made. The Army and Air Force focused on the size of the USN's carrier force, established at eleven heavy carriers and eight smaller carriers in the Basic Naval Establishment Plan for 1949 in August 1948.[100] The Army recommended that the navy should have six large carriers while the Air Force suggested only four. The USN, in contrast, argued that anything less than nine carriers would

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99. Barlow, *Revolt of the Admirals*, 159-161.
100. Palmer, *Origins of the Maritime Strategy*, 52.

result in a Carrier Task Force with 'definite limited capabilities.'[101] The issue was finally settled when Forrestal, now the Secretary of Defence, authorised an eight carrier force level, provided it could be maintained out of the $4.6 billion allocated to the navy for FY 1950.[102]

Faced with a deteriorating international situation, the British and American planners had agreed to meet again in October 1948, to review not only the short term emergency war plan but also to consider their own - and Russia's - long term strategic intentions and capabilities.

The principal statement of Britain's strategy in war was the 'Overall Strategic Concept for War in 1957.'[103] The Allied strategy in war would be to destroy the Soviet Union's ability and will to fight. Since a land strategy would involve an effort beyond the resources of the Western powers and a sea and land blockade would be largely indecisive against a self-sufficient Russia, the only military means capable of achieving the Allied war aims would be a strategic air offensive, directed against the Soviet Union's centres of control and war-making capabilities.

In addition to using land-based air forces for the strategic air offensive, the deployment of aircraft carriers was also contemplated, to allow the whole target system to be covered and to force the Soviets to deploy additional air and sea forces in a defensive role. Such carrier-borne attacks might be mounted from the Barents Sea to supplement the shore based offensive from the United Kingdom and bring within range the North Ural area of the Soviet Union which might otherwise be inaccessible to land-based aircraft. They might also be mounted from the Bering Sea to support the air offensive from Okinawa. In order to hold the air bases and sea areas essential for launching the strategic air offensive, it would be necessary to control the sea

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101. JCS 1800/14 'Allocation of Forces and Funds for 1950 Budget', 9 November 1948, File 370, sec. 11, RG 218/Decimal File/1948-1950, Box 152.
102. JCS 1800/15, 10 November 1948, MF 30/0723, Records of the Joint Chiefs of Staff, Part 2: 1946-53, Strategic Issues 2, LHCMA.
103. JP (48) 59 (Final) 'Overall Strategic Concept for War in 1957', 20 July 1948, DEFE 6/6.

communications between those bases and the support areas. Control of sea communications would also be vital to deploy forces and prevent the enemy land and sea forces from being deployed or supported by sea. The North Atlantic, Mediterranean and Pacific lines of communication were considered to be particularly important.

Although an offensive role for carriers in war was therefore envisaged by the Admiralty, this role was to be undertaken primarily by the United States Navy. In the Mediterranean, for example, the Royal Navy and the USN had agreed that the latter's carriers were to undertake offensive action against enemy naval and air forces from the start of the war, while the RN's carriers were to protect the convoys.[104]

The Royal Navy's tasks in war had been clearly spelt out in a memorandum by the Plans Division in July 1948.[105] 'The Roles of the Navy in War' placed the greatest emphasis on the navy's defensive role in war - on the protection of convoys against submarine and air attack and providing air cover in support of the army - rather than on the more offensive tasks such as attacking enemy naval bases or coastal shipping. The Director of Plans argued that the navy had too few front-line aircraft for carrier task forces to undertake such offensive action, at least for the first eighteen months of war. During talks with the Americans in March 1947, it had become clear that the RN's strike component (just thirty-six aircraft in September 1948) was too small to be effective against opposition. The US Navy planners believed that a strike by anything less than 200 aircraft would be too weak to achieve results and in 1948 the Royal Navy were only able to deploy 169 front-line aircraft, in contrast to the USN's 1,100.[106] Priority should therefore be accorded to fulfilling the RN's ASW and fighter commitments over the strike role, although a nucleus squadron would be maintained for

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104. 'Notes of a Meeting Between C-in-C Mediterranean [Admiral A. Power] and COM Sixth Task Fleet [Admiral Sherman] and Operational Staffs held at Malta, 13 & 14 August', 25 August 1948, ADM 205/69.
105. 'The Roles of the Navy in War', 20 July 1948, ADM 205/69. See also the minute by the D of P on 20 July 1948 in ADM 1/24518.
106. 'Maritime Operations', memorandum by D of P, 28 September 1948, ADM 205/69.

expansion later.

The decision created considerable controversy within the Royal Navy, especially among those officers concerned with the development of naval air tactics. The type of war for which they should now be preparing and the tactical role of each type of aircraft seemed unclear. In particular, there appeared to be a divergence between strategy and training for the fleet. Fleet exercises had already taken place on the assumption that offensive carrier operations against enemy targets outside the range of shore based air forces would be one of the navy's roles.[107] The Fifth Sea Lord, responsible for Naval Aviation, complained bitterly about surrendering 'all striking power to other services and other Navies', and accused the Board of Admiralty of leading the Commanders-in-Chief 'up the garden path.'[108] He urged that at least a proportion of Britain's naval forces be set aside for offensive action. Others demanded that, if an attack-at-source strategy was not possible, then at least a more 'offensive' defence should be adopted.[109]

However, as the First Sea Lord, now Lord Fraser, commented, 'planning can only proceed on something we know we must do; escort safely our convoys.'[110] Moreover, it could only proceed on the basis of what the Royal Navy *could* do. While studies of the feasibility of carrier-borne bombers undertaken during the first half of 1948 had concluded that there would be advantages in using carriers for launching attacks on Soviet territory beyond the range of land-based bombers, the Admiralty did not think that its existing carriers could be made to launch aircraft of over 80,000 lbs, and it was uncertain whether the development of a smaller atomic bomb of, say, 8,000 lbs was possible.[111] Although the JPS instructed the Admiralty to investigate the practicability

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107. See the letter from Home Air Command, 24 September 1948, ADM 1/24518 & 'Policy and Fleet Tactical Training', memorandum by DTSD, 14 July 1948, ADM 205/69.
108. Letter from Fifth Sea Lord to FSL, 10 September 1948, ADM 205/69.
109. Letter from Flag Officer (Air), Mediterranean Fleet to C-in-C Mediterranean Fleet, 20 May 1948, ADM 1/24518.
110. Letter from FSL to Fifth Sea Lord, 14 September 1948, ADM 205/69.
111. JP (48) 7 'Mounting of an Air Counter Offensive in 1957. Use of Naval Carriers', 11 March 1948, DEFE 6/5; COS (48) 41st Meeting, 18 March 1948, DEFE 4/11.

of designing carrier-borne strategic bombers, the project does not appear to have made it as far as the drawing board and in October 1949, the Chiefs of Staff decided not to proceed with the study.[112] Although the project had been considered worthwhile in theory, in practice the Navy were now committed to a defensive role in a future war and were investing their naval aviation resources most heavily in ASW. This was reflected in the types of aircraft ordered in the late 1940s, such as the Attacker and Sea Hawk fighters and the ASW Gannet. Indeed, the COS were becoming increasingly sceptical of the need for large fleet carriers at all and in late 1949 decided that only one of the large fleets recommended for modernization by the Admiralty - HMS *Victorious* - would be taken in hand for rebuilding.[113]

The United States plan for long-term strategic defence - 'US Outline Plan for War Against the USSR in 1957' - conformed substantially with the British plan.[114] It agreed that Allied strategy could not be based on large scale operations aimed at a ground invasion of the Soviet Union and that the first step must therefore be to mount as soon as possible a strategic air offensive against the Soviet Union's war-making capacity from bases in the US, Alaska, Okinawa, Cairo-Suez and the United Kingdom. Other basic undertakings, in collaboration with allies, included securing the land and sea areas essential to the overall strategic concept and controlling the sea and air lines of communication. Studies by both the Commander in Chief US Naval Forces, Eastern Atlantic and Mediterranean (CINCELM) and the Commander in Chief, US Pacific Fleet (CINCPACFLT) in late 1948 therefore recommended a forward offensive strategy, with carriers conducting direct strikes on Soviet air and naval bases.[115]

At the meeting in October 1948, the British and American planners also revised Plan

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112. JP (48) 55 'Use of Aircraft Carriers in Connection with Strategic Air Offensive', 2 June 1948, DEFE 6/6; Grove & Till, 'Anglo-American Maritime Strategy', 285.
113. Simpson & Gregory, 'The Evolution of British Naval Equipment', 220.
114. A copy of the US plan can be found in JP (48)136 (Final) 'Long Term Strategic Concept - Discussions with US Planners', Appendix I, 6 November 1948, DEFE 6/7.
115. Palmer, *Origins of the Maritime Strategy*, 66-67.

Doublequick/Halfmoon to cover the period up to July 1950. The new plan - Speedway (British version)/Fleetwood (US version) - was basically the same as the original, but with a more detailed assessment of capabilities, there was some reduction in the number of forces likely to be available.[116] As far as the deployment of naval forces was concerned, it was considered desirable that for the control of sea communication, enemy naval forces be thrown on to the defensive from the outset and forced to deploy in a defensive role. To achieve this, naval operations were to be undertaken immediately at the start of war, including attacks on Russian bases and shipping in the Barents Sea by submarines and mining, attacking Black Sea communications with light surface forces, submarines and aircraft and mining the entrance to the Baltic.

To retain superiority over the Mediterranean line of communication, and supplement the air forces deployed on the North African coast, additional air effort would be provided by the USN, who would make one carrier task group available by D+1 month and two by D+3. Accordingly, two carriers were redeployed from the Pacific to the Atlantic command to allow for the increase in naval air effort in the Mediterranean.[117] The USN carriers would carry out offensive operations against enemy airfields and lines of communication while the British naval air effort, as previously agreed, would provide close air support for the protection of convoys in the approaches to the Mediterranean and assisting the defence of the Army sea flank. The British planners also hoped that the USN would provide one or two ASW hunter-killer groups in the Atlantic, consisting of one carrier and six escorts, in addition to the RN's one fleet and two light fleet carriers.

Over the course of 1949, the volatile strategic environment did not improve substantially, from either the British or American points of view, or from the standpoints

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116. JP (48) 131 (Final) 'Plan 'Speedway'', 18 November 1948, DEFE 6/7; JSPC 877/23 'Revised Brief of Short-Range Emergency Plan Short Title: Fleetwood (Halfmoon-Doublestar)', 14 October 1948, Ross, *American War Plans*, 94. Unless otherwise stated, the next two paragraphs are based on these sources.

117. JSPC 19/19 'Position on Troop Deployments', Appendix B to Enclosure B: 'The Navy Problem', 17 December 1948, File 381, sec. 12, RG 218/Decimal File/1948-1950, Box 175.

of either navy. In August, the Soviet Union exploded their first atomic bomb and in September, China fell to the Communists. In Britain, the economic situation had worsened and an annual ceiling of £700 million on defence expenditure threatened a large cut in the size of the armed forces. In February, a COS Committee warned that, under the reduced budget, the defence of sea communications in the Mediterranean, Persian Gulf and Far East would all have to be an American responsibility, leaving the Royal Navy to secure the Home Waters and the North Atlantic.[118] The strategic implications were clear: 'it would mean that we would be shedding our commitments and reducing our forces to such an extent that it would appear as if we were withdrawing into the UK base and relying on the Commonwealth and our allies to look after most of our overseas interests.'

For the Admiralty, anxious to maintain a properly balanced fleet, the economic situation posed a dilemma. As the Controller of the Navy explained:

> on the one hand we have a number of operational tasks to perform and cannot afford to do them all as well as we should like; on the other hand it is politically impossible for this country, whose very life depends on secure sea communications to accept a situation in which some part of its essential sea security is surrendered wholly to the safekeeping of another power, however friendly. Such a step would mean accepting complete domination of our policy in peace and war by another country. We cannot leave therefore entirely to the Americans any one branch of sea warfare.[119]

By 1949, however, it was clear that the governing strategic factor was financial. As the Fourth Sea Lord admitted reluctantly, the basic framework for planning was now economic; it was no longer practical to think in terms of wartime 'where operational necessity justified anything and money was no object. Now that we have not enough money, nor enough material...we must function according to the availability of these things.'[120]

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118. DO (49) 47 'Size and Shape of the Armed Forces: Report of the Harwood Working Party', 28 February 1949, CAB 131/7.
119. 'Ships of the Future Navy', paper by the Controller, 13 April 1949, ADM 205/84.
120. Paper by Fourth Sea Lord, 10 March 1949, ADM 205/71.

Indeed, the Admiralty's attempt to prepare a 'realistic' plan for the postwar fleet within a £200 million limit - the so-called 'Revised Restricted Fleet' - now included provision for a wartime fleet of only six fleet carriers, four light fleet carriers and 250 front-line aircraft. Since the financial state of the country made it impossible to fulfil all the navy's wartime duties, it was also assumed that the US would provide half the forces for the North Atlantic and Mediterranean and all the forces for the South Atlantic, Pacific and West Indies.[121]

The composition of the Royal Navy's carrier aviation forces was also subjected to close scrutiny. In particular, the wisdom of developing very expensive, high performance aircraft was now being mooted. During Exercise Trident in April 1949, a staff conference to determine how best to use the navy's available resources in war, some senior officers expressed the opinion that what naval aviation needed was quantity not quality.[122] It was argued that since the main function of the navy's carriers was now to protect convoys against submarine and air attack, the RN should employ more lower performance aircraft, capable of operating from smaller carriers, rather than high performance aircraft, such as the Gannet, which were not essential for trade protection duties. Moreover, although some modern high performance aircraft would be required to strike enemy warships and merchant shipping, the number of large carriers needed - or indeed, possible to afford - was also much lower than the number of smaller types needed for convoy duties.

With the devaluation of the pound in September 1949, the issue became even more acute. The planned expansion of the Fleet Air Arm to 250 by 1957 was placed in jeopardy and the Fifth Sea Lord warned that unless there was an improvement in the financial situation, the navy would have to choose between a Front Line strength of 100

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121. 'Revised Restricted Fleet', Paper B590, 23 May 1949, ADM 167/133.
122. See for example the Controller's paper on 'Ships of the Future Navy', 13 April 1949 & the note by the VCNS to the FSL, 17 June 1949, ADM 205/84.

high performance or 250 low performance aircraft.[123]

In the United States, further cuts in defence expenditure in 1949 continued to impact upon the ability of the USN to fulfil its role in national security policy. Carrier air power came under particularly close attack and threatened to reduce the USN's offensive capabilities even more. On 23 April, for example, the new CVA-58 'supercarrier', recently named as the USS *United States*, was cancelled by the Secretary of Defence, Louis Johnson, less than one week after it had been laid down.[124] The cancellation was justified at the time primarily on economic grounds, but some historians now argue that the decision was less about saving money than preventing the USN from participating in the strategic air offensive. According to Jeffrey Barlow, there is evidence to suggest that the Air Force privately exerted pressure on Johnson to cancel the nuclear-capable carrier.[125] Indeed, on the very same day that the *United States* was cancelled, the Chief of the USAF, General Hoyt Vandenberg had written to Johnson urging discontinuation of the CVA-58 project on the grounds that there was no requirement for such a carrier in connection with strategic air warfare.[126] The Navy Department vigorously denied that it was building the super carrier in order to 'horn in' on the primary function of the Air Force and justified its decision on purely practical grounds:

> The reason for this biggest carrier is simply one of mathematics. High performance demands high power; high power requires a large fuel load. All this combines into bigger and heavier planes. In addition, jets - and other elements of modern high performance aircraft of increased striking power - require longer take-off runs and landing space.[127]

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123. 'The Present and Future of Naval Aviation', 7 October 1949, ADM 205/71.
124. Memorandum from Secretary of Defense to Secretary of the Navy, 23 April 1949, File 561, RG 218/Decimal File/1948-1950, Box 241.
125. Barlow, *Revolt of the Admirals*, 183-188. Rosenberg takes an opposing view, arguing that the decision to cancel the *United States* was primarily an economy move. 'American Postwar Air Doctrine', 258.
126. 'The CVA-58 Project', memorandum from General Vandenberg to Secretary of Defense, 23 April 1949, File 561, RG 218/Decimal File/1948-1950, Box 241.
127. 'Some Aspects of National Security', address by RADM R.A. Ofstie before Reserve Officers Association, 17 February 1949, Ralph A. Ofstie papers, Series III, OAB.

Nonetheless, throughout this period, the USAF was much more successful in securing both congressional and public support than were the navy, a fact not lost on Rear Admiral Ofstie, who lamented: 'The Navy's missions, intent and usefulness to national security will continue to be suspect so long as these matters are not widely and forcibly presented to the American public.'[128]

A further blow to carrier aviation was struck by the Fiscal Year 1951 budget cuts in July 1949. A ceiling of $13 billion - $1.4 billion *less* than FY 1950 - was imposed. The navy was allocated $3.8 billion, $800 million less than in the previous year and $300 million less than the Army and $700 million less than the Air Force.[129] The cuts were felt most keenly in naval aviation. Only a four carrier force level for FY 1951 (raised to six two months later) was authorised. The Basic Naval Establishment Plan for 1950 thus saw an overall reduction in the number of heavy carriers from eleven to eight (all from the Pacific Fleet) and the number of carrier air groups was reduced from thirty-six groups and 2,567 aircraft to fourteen groups and 1,522 aircraft.[130]

Following the establishment of the North Atlantic Treaty Organization (NATO) in April 1949, both the British and American defence planners found it necessary to revise their strategic concepts. The informal Anglo-American military relationship had been transformed into a formal political commitment involving several other nations and changes in both the short-term and long-term strategic concepts for the defence of Western Europe were now required. In particular, efforts to provide for the conventional defence of Europe would have to be made.[131] Fresh discussions were therefore held in Washington in October 1949 to revise the emergency war plan and determine what

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128. 'Strategic Air Warfare', memorandum for Op-05 from Ofstie, 29 April 1949, Ralph A. Ofstie papers, Series V, OAB.
129. Barlow, *Revolt of the Admirals*, 223.
130. Palmer, *Origins of the Maritime Strategy*, 56.
131. Ross, *American War Plans*, 110.

forces were needed to implement the long-term strategic concept already agreed.

The revised emergency war plan - Offtackle (US version)/Galloper (British version) - covered the period up to July 1951 and was the most comprehensive concept of operations yet produced by the British and American planners.[132] The plan assumed that in a war the Soviet Union would undertake simultaneous offensives in Western Europe and the Middle East, limited operations in the Far East, Alaska and Canada, a sea and air offensive against the Allied lines of communication and initiate an air offensive against the British Isles. As soon as possible thereafter, campaigns against Spain and Scandinavia might be mounted.

At the start of the war, the Allies would launch an atomic air offensive, using both land- and carrier-based air forces, against the Soviet Union's war-making capacity, including shipping, naval and air forces, ports and bases. The sea and air bases for launching the air offensive and the lines of communication thereto were also to be secured. Since the Allies were unlikely to be able to maintain a defensive position in Europe, they would conduct a fighting withdrawal, preferably to the North African coast, from where the eventual reentry into Europe would be mounted in the second year of the war.

Allied naval forces would be deployed in approximately the same proportion as in Speedway/Fleetwood, but with the USN's main carrier striking force concentrated in the Mediterranean, the Royal Navy would be centred much more in the Home and Atlantic theatres.[133] Four USN fleet carriers would be deployed in the western Mediterranean by D+1 month, rising to seven by D+3. Although they might also be sent to the Atlantic to support Britain, their primary mission was to protect the North African base area. Britain would also deploy two light fleets and one fleet carrier in the Mediterranean. With no

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132. JP (49) 134 (Final) 'Plan Galloper', 1 March 1950, DEFE 6/11; JCS 1844/46, 'Joint Outline Emergency War Plan Offtackle' 8 November 1949, Ross, *American War Plans*, 111-119. The following three paragraphs are based on these sources.

133. See also 'Summary of Deployment of Carrier and Maritime Aircraft in Plan Galloper', 1 June 1950, ADM 205/74.

assurances that the USN were planning to deploy permanently any carriers in the eastern Mediterranean, the British carriers would also be primarily responsible for defending an area to which Britain attached considerably greater strategic importance than the Americans.[134] In the North Atlantic, Britain would provide half of the naval forces required for the control of sea communications, including one fleet and four light fleet carriers. The Americans would provide two light carriers for additional convoy protection.

The plan assumed that the main assault on Allied sea communications would take the form of attacks on ports and approaches by mining, inshore submarine attack and bombing. The threat from surface raiders and ocean-going submarines was likely to be less than that from the Soviet Union's naval air force. This would be especially true after Russia acquired advanced bases in Europe and their land-based aircraft, initially deployed in support of the army, became available for other tasks. The approaches to the British Isles and the Mediterranean line of communication were felt to be particularly vulnerable to attack. Great emphasis was therefore placed on establishing convoys on all routes between Europe and the main support areas, but it was also considered desirable for the control of sea communications to throw the enemy naval forces onto the defensive as soon as possible. To this end, certain naval forces would be allocated for offensive tasks.

Plan Offtackle/Galloper was not without its shortcomings. Aside from the Royal Navy's apprehension about their ability to control sea communications in the eastern Mediterranean without American assistance, the United States Navy was also dissatisfied with various aspects of the plan. Under Army and Air Force pressure, only

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134. Britain and America had differing opinions on the importance of the Middle East in war. The British considered the defence of the Middle East and its oil resources to be a high priority but the Americans no longer considered it to be a critical theatre and preferred North Africa as a strategic air base. They did not, therefore, plan to deploy any forces in the region at all during the first three months, fearing it would draw their forces into a 'side-show' theatre instead of allowing the build up for the reconquest of Europe. See JP (49) 85 'Examination of United States Strategic Concept for War in 1950/51', 5 September 1949, DEFE 6/9.

eight carriers were to be made available during the first two years of the war plan, a force tab interpreted by the USN as complete disregard, not only of the navy's current capabilities, but also of the doctrine they had been developing for the strategic use of carrier air power.[135] Moreover, the plan placed 'undue reliance on the results expected of the atomic phase of the strategic air offensive' and made no provision 'for alternate courses of action.'[136]

However, the United States long-range plan for war in 1957 allowed the USN to reassert the preferred strategic use of carrier air power in a forward-deployed, offensive role against the Soviet Union in war.[137] In its emphasis on early carrier-based offensive operations against Soviet naval forces and facilities, 'Plan Dropshot' more closely resembled the maritime concept outlined in 1946-47. Although the Soviet Union's submarine forces were not now considered to be a serious threat to the Allies sea communications, they would nevertheless be capable of 'harassing attacks', necessitating the 'uneconomical diversion of heavy units to convoy duty.' The most effective means of dealing with this threat would be offensive operations against Soviet naval and merchant shipping and submarine and naval bases in Murmansk and the Black Sea area, including the lines of communication, industrial facilities and air bases supporting the Soviet campaign at sea. On D-Day, two US fast carrier task forces would be deployed to the Mediterranean (eight fleet and two light fleet carriers), one in the Barents-Norwegian Sea area (three heavy and three light fleet carriers) and one in the Western Pacific (four carriers), extended the radii of action up to 1,500 miles into the

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135. Palmer, *Origins of the Maritime Strategy*, 73.
136. JCS 1844/46 'Navy Presentation of Current Emergency War Plan', 9 November 1949. Quoted in ibid.,76.
137. The final version of Plan Dropshot is contained in three volumes in JCS 1920/5 'Long Range Plans for War with the USSR - Development of a Joint Outline Plan for use in the Event of War in 1957 (Short Title: 'Dropshot')', 19 December 1949, Ross, *American War Plans*, 119-131. The next two paragraphs are based on this reference. Dropshot has also been published by Anthony Cave Brown (ed.), *Operation World War III. The Secret American Plan 'Dropshot' for War with the Soviet Union 1957* (London: Arms and Armour, 1979).

Soviet Union.[138]

The carrier-based offensive would be supported by the mining of the approaches to Russian ports and bases, anti-submarine operations and hunter-killer operations against those forces which did break out to the open sea. The total carrier requirement for the first phase of war included thirteen fleet carriers, four light and nine escort carriers. Anti-submarine requirements in the Atlantic, Mediterranean and Pacific would also average six light fleet carriers, four light fleet carriers and six escort carriers respectively.

The American estimate of naval forces required to implement the long-term strategic concept for war in 1957 was much lower than the initial estimates produced by the British planners.[139] These had been divided by the latter into four geographical areas - Attack at Source (world wide), Atlantic-Home Waters, the Middle East and the Pacific-Far East. Four Task Forces for attack-at-source duties were to be created, one for each region, in addition to the offensive and defensive naval forces required in each theatre. Including reserve ships, a total of three heavy carriers, thirty-eight fleet carriers, fifteen light fleet carriers, twelve escort carriers and 2,975 aircraft were considered necessary for war in 1957. However, the British estimate of naval requirements specified forces which were desirable but which in many categories were unlikely to be achieved. The US estimates, in contrast, were made with regard to forces likely to be available in 1957 and were therefore much more realistic. In consequence, following the discussions with the Americans in October 1949, the British accepted there would have to be a reduction in their figures.

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138. 'The Long-Range Outline War Plan DROPSHOT', memorandum by DCNO (Operations) to CNO, 12 January 1950, SPD, Box 256; Palmer, *Origins of the Maritime Strategy*, 72.

139. JP (49) 63 (S) (Final) 'Forces Required to Implement Allied Strategy - 1957', 29 July 1949, DEFE 6/9; JP (49)136 (Final) 'Long Term Strategy and Plans - Discussions in ABC Committee', 10 November 1949, DEFE 6/11.

By early 1950, the outlines of a western strategy, as distinct from a purely national strategy, were clearly identifiable in both British and American defence planning. During the first two years of the postwar period, collaboration between the two countries in postwar defence had been minimal and was largely confined to limited exchanges of technical information. After 1947, however, straitened economic circumstances and an increasing emphasis on cold war priorities as relations with the Soviet Union broke down further, forced the United States and Britain to draw closer together. With strategy-making now based on much wider considerations than hitherto, Britain and America increasingly became each other's most vital ally in the postwar strategic environment. Following the establishment, first of the Western European Union in March 1948, and then the North Atlantic Treaty Organization in April 1949, the concept of allied defence and strategy became even more firmly entrenched in the minds, ethos and doctrine of both the British and American defence establishments. The British Minister of Defence spoke for both countries when he asserted in January 1950 that defence could 'no longer be planned on a purely national basis. The nature of the risk and the character of modern weapons make it essential for effective defence that we should consult with our friends and allies and develop our forces in conformity with an integrated plan.'[140]

Collaboration with the United States in policy and method was clearly reflected in the close strategic cooperation between both the United States Navy and the Royal Navy, in terms of tactics, operations and equipment. The assumption that the US would come to the immediate assistance of Britain in a future war, for example, included the expectation that the USN would provide many of the aircraft Britain needed. Since US naval aircraft were bigger than British types, it became a requirement of carrier design

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140. DO (50) 5 'Statement on Defence', 27 January 1950, CAB 131/9.

that the hangars be large enough to accommodate American planes.[141] With the likelihood that British carriers would be operating as part of a US carrier task force, the Royal Navy also began adapting their carrier operating procedures. Between January and February 1949, trials were carried out by the British light fleet carrier, *Triumph*, and USS *Philippine Sea* in the Mediterranean using American deck landing techniques.[142]

There was also 'regular and close cooperation' between the British Mediterranean Fleet and the US Sixth Task Fleet. Exercises between individual ships or small groups, including the 'exchange' of carrier decks, contributed greatly to increasing the level of efficiency in RN-USN cooperation.[143] As the Fleet Officer (Air) in the Mediterranean Fleet commented on the conduct of joint operations in 1949: 'the most striking impression...gained from these exercises was the almost complete absence of difficulties, due to similar thought, doctrine and methods of operation and the complete understanding between the two services.'[144]

Between 1945-1950, the national strategies of Britain and American had therefore been progressively harmonised and integrated with that of the other, so that by the end of the decade, a new western strategy was beginning to be distinguished. As the 1950s dawned, that process of definition was given greater impetus by the challenge of war in Korea, as Britain and the United States were drawn into ever closer strategic cooperation.

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141. Norman Friedman, 'The Royal Navy and the Postwar Naval Revolution 1946 to the Present', in J.R. Hill (ed.) *The Oxford Illustrated History of the Royal Navy* (Oxford: Oxford University Press, 1995), 411.
142. 'Trials Carried out using US Naval Deck Landing Technique', 6 May 1949, ADM 1/21293. The US method of approaching the ship at flying level, rather than with a 'sink', effectively made the deck 100 foot longer and was recommended for immediate introduction into the Royal Navy.
143. 'Combined Naval Exercises', memorandum by FSL, 10 February 1949, DEFE 11/9.
144. 'Trials Carried out using US Naval Deck Landing Technique', 6 May 1949, ADM 1/21293.

# CHAPTER 5

# ANGLO-AMERICAN CARRIER AVIATION AND THE KOREAN WAR 1950-1953

*A British frigate was oiling from an American naval tanker at a Japanese base and the sailors were leaning over their respective guard-rails.*
*U.S. Sailor: "How's the second largest Navy in the world?"*
*Jack: "Fine! How's the second best Navy?"*[1]

Although the relationship between Great Britain and America had grown appreciably stronger since the end of the Second World War, relations between the two countries on the eve of the Korean War nevertheless retained an ambivalent, almost schizophrenic, quality. On the one hand, the perceptible cooling in Anglo-American relations that had taken place in the immediate postwar years, had been replaced by a common understanding based on mutual cooperation and support that extended into the political, diplomatic, financial and strategic realms. On the other hand, the administrations of both countries remained highly suspicious of each other; the United States of Britain's lingering imperialist pretensions - particularly in the Middle East - and Great Britain of the United States seemingly unilateral approach to the conduct of foreign affairs.

Nowhere did this inconsistency in Anglo-American relations play itself out more thoroughly than in the Far East. Although Britain and America had established a relationship of close cooperation in Europe, pursuing common policies with common aims, there had been 'little meeting of minds' between the two countries over the Far East.[2] London's recognition of the communist government in China in January 1950, for example, led to vigorous protests from Washington, which favoured the exiled

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1. 'Pierrot', 'Korean War News', *Naval Review*, vol. XXXIX, no. 3 (August 1951), 338.
2. M.L. Dockrill, 'The Foreign Office, Anglo-American relations and the Korean War, June 1950-June 1951', *International Affairs*, no. 3 (Summer 1986), 459.

Kuomintang government. In return, the British Foreign Office complained that the coordination of Anglo-American policy in the Far East was 'virtually non-existent.'[3]

However, if the relationship between the British and American political establishments was at times acrimonious, the outbreak of war in Korea in June 1950 revealed that the same could not be said of the two countries military establishments. As earlier chapters have revealed, the armed services in Britain and America had been eager for wartime collaboration to continue and postwar relations continued, as far as political constraints allowed, in a spirit of close cooperation and mutual assistance. The experience of operating together in war for the first time in five years served only to cement this relationship. Indeed, while the British government found reason to complain that they were not being adequately consulted over the nature of the US-led United Nations operations in Korea,[4] the extent of cooperation and the conduct of joint operations by the British and American forces was exalted by General Douglas MacArthur, the Commander of the UN forces in Korea, as a 'picture of complete unification, both professional and national.'[5]

The coordination of Anglo-American naval strength in particular, was lauded by MacArthur as 'unparalleled in history.'[6] The Royal and United States navies, particularly their carrier aviation branches, worked together with ease throughout the Korean War, building on the level of collaboration that had existed before 1950. Although this common effort did introduce some difficulties, the British and American carriers and their aircraft collaborated closely in terms of doctrine, operations, tactics and

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3. 'The Implications of the Situation in Korea for British Foreign Policy', 13 July 1950, *Documents on British Policy Overseas* [hereafter *DBPO*]series II, vol. IV *Korea, June 1950-April 1951* (London: HMSO, 1991), document no. 19, 52.
4. See Peter Lowe, 'The Frustrations of Alliance: Britain, the United States and the Korean War, 1950-1951', in James Cotton and Ian Neary (eds.), *The Korean War in History* (Manchester: Manchester University Press, 1989), 80-99.
5. JCS 2155/2 'Report of United Nations Command Operations in Korea', 14 August 1950, File 319.1, sec. 1, RG 218/Decimal File/1948-50, Box 93.
6. JCS 2155/3 'Report of United Nations Command Operations in Korea', 30 August 1950, RG 218/Decimal File/1948-50, Box 93.

communications to a degree unknown either during World War II or afterwards and gave further impetus to the steady process of harmonisation and standardization within Anglo-American carrier aviation that had been taking place since 1945.

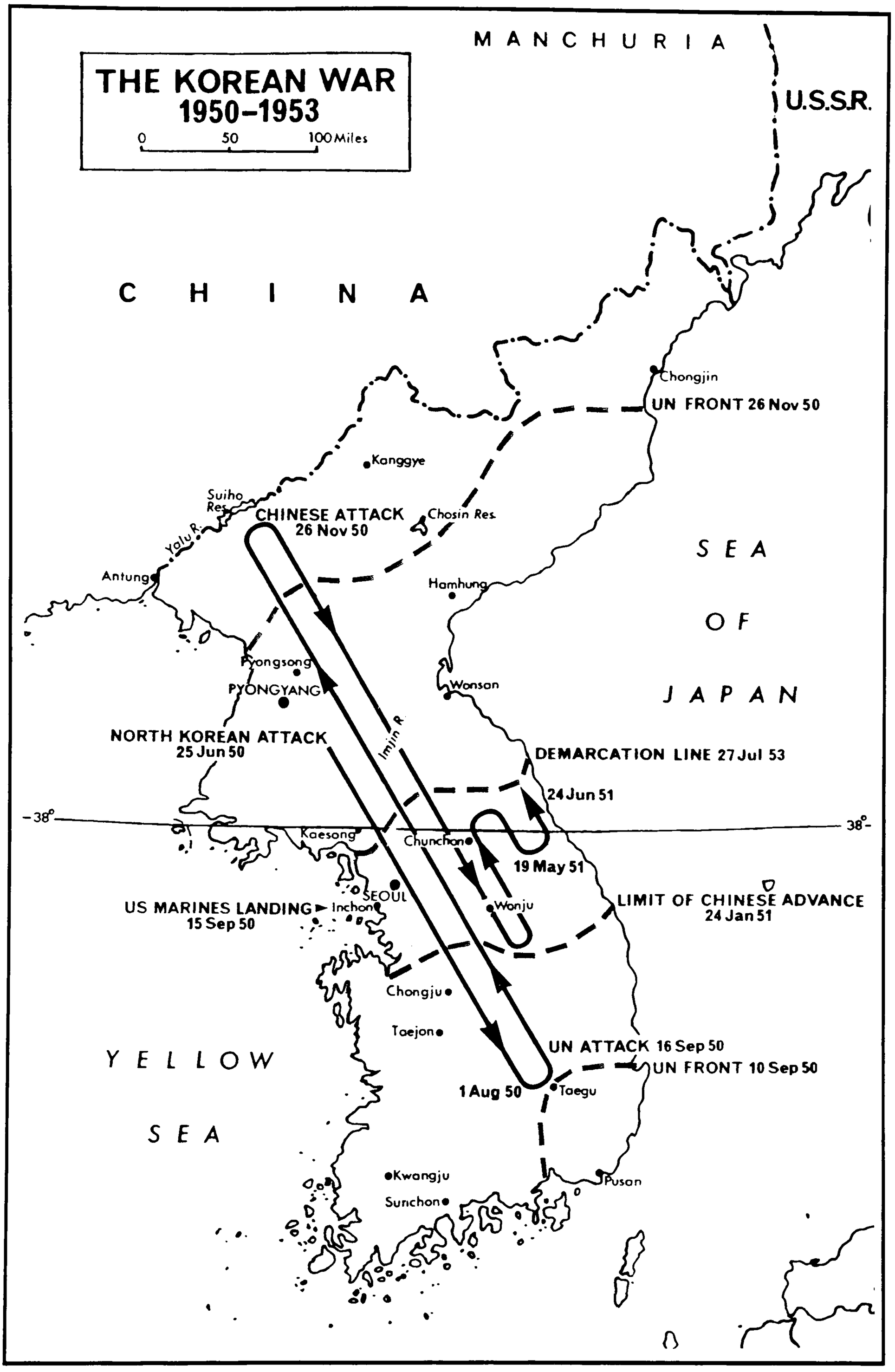
This chapter examines the extent of Anglo-American strategic cooperation during the Korean War. Joint Anglo-American carrier operations occurred most frequently on the west coast of Korea and thus major part of this chapter focuses on this theatre of the war. Nonetheless, the full scale of the USN's carrier effort in Korea cannot be appreciated without acknowledging the nature and extent of operations also undertaken on the east coast of Korea and these will be briefly examined. The first section of this chapter will consider the operations of the British and American carriers and their aircraft, before turning attention on to how these operations affected not only the future development of carrier aviation in the technical, operational and strategic fields, but also the relationship between the Royal and United States navies. Many of these themes will also be explored in greater depth in subsequent chapters.

## I. Anglo-American Carrier Aviation at War, 1950-1953

When the Korean War began on 25 June 1950, the greater part of the British Far Eastern Fleet, including one light fleet carrier (HMS *Triumph* ) two cruisers, two destroyers and three frigates, had just sailed for Hong Kong after completing a cruise around Japan. They were immediately given orders to return to Okinawa and place themselves at the disposal of Vice-Admiral Arthur Struble, the US Commander of the Seventh Fleet, for operations in support of the United Nations resolutions.[7] The Seventh Fleet, which included the fleet carrier, USS *Valley Forge*, was usually based in the

7. 'First Report of Proceedings', 21 August 1950, ADM 116/5794.

*Fig. 5.1 The Korean War 1950-1953*




Source: Anthony Farrar-Hockley, *The British Part in the Korean War* vol. I *A Distant Obligation* (London: HMSO, 1990)

Philippines but was ordered to Japan to supplement the US Far Eastern Naval Command, whose largest unit was a 6,000 ton cruiser.[8]

On the 3 July, the first naval air strikes of the war were launched from *Triumph* and *Valley Forge*, against airfields on the west coast of North Korea.[9] The irony was later noted that on the eve of the Fourth of July, *Triumph* was the combat partner of the *Valley Forge*, a name forever associated with General George Washington.[10] Although *Triumph*'s aircraft did not destroy any enemy aircraft, the two ships were able to work together under the US Command System with ease, adopting US signals and tactical methods.[11] The British ships in the Far East were used to working alongside the US naval authorities in Japan. In March 1950, *Triumph* had taken part in combined exercises with the US Navy in the China Sea and it was this practical experience of cooperating together that was primarily responsible for paving the way for smooth cooperation in the Korean conflict.[12] As Rear-Admiral W.G. Andrewes, the first British Naval Commander in Korea, remarked on the Royal Navy's first experience of operating with American ships in war since 1945:

> It all seemed so familiar joining up in formation...as it was just what we had done so often during the exercises in March with very similar forces. We didn't feel out of things and were already getting back into the easy use of American signal books.[13]

British and American carriers and their aircraft continued to work together in close strategic cooperation throughout the Korean War. Although British and Commonwealth

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8. Other units included four destroyers and six minesweepers whose primary tasks included smuggling patrols in the Tsushima Straits between Korea and Japan and 'showing the flag.'
9. For a detailed account of British carrier operations in the Korean War, see John R.P. Lansdown, *With the Carriers in Korea. The Sea and Air War in SE Asia, 1950-1953* (Cheshire: Crécy Publishing Limited, 1997).
10. 'The Valley Forge Story', *Naval Aviation News*, (July 1952), 16-17.
11. 'Second Report of Proceedings', 10 July 1950, ADM 116/5794.
12. Report by Admiral Andrewes, 'Combined Exercises with the United States Navy - March 1950', 12 March 1950, ADM 1/21868.
13. 'Second Report of Proceedings', 10 July 1950, ADM 116/5794.

naval forces were assigned general responsibility for operations on the west coast of Korea (TG 95.1), and US forces operations on the east coast, there was a regular exchange of ships and personnel between the two Task Groups. Officers from both the United States Navy and the Royal Navy were frequently interchanged to observe carrier air operations and for familiarization and training.[14] A Royal Navy Landing Signal Officer from HMS *Glory*, for example, was sent aboard USS *Sicily* when the two carriers operated together in November 1951, while HMS *Ocean* sent its Operations Officer over to *Sicily* in September 1952 to assist in the turnover from ship to ship.[15] USN aircraft even made landings on the British carriers, thus 'proving the adaptability of a joint Anglo-American Carrier Force.'[16]

Between June and August 1950, *Triumph* continued to work with the heavy carriers (TF 77) of the US Seventh Fleet until the arrival of additional American carriers on the east coast and until enough destroyers for an effective screen against possible submarine attacks by the Soviet Union became available on the west coast.[17] *Triumph*'s performance with TF 77, covering US landing operations, was severely restricted, however, not only by the limited endurance of her aircraft, but also by her lack of speed in comparison with the US carriers. The strike radius of the Fireflies was not more than 120-130 nautical miles, just over half that of the USN's Skyraiders. *Triumph*'s twelve Firefly I's and twelve Seafire 47's were therefore restricted to combat air patrols (CAP) and anti-submarine patrols (ASP), an experience described by Andrewes as 'galling but

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14. Ser 002 'Action Report 7 December to 17 December 1952', memorandum from Commanding Officer [CO] USS *Badeong Strait* to Chief of Naval Operations [CNO], 20 January 1953; Ser 004 'Action Report 26 December 1952 to 5 January 1953' memorandum from CO USS *Badeong Strait* to CNO, 27 January 1953. Post 1 January 1946 Action Reports, OAB.
15. 'British Flag Waver', *Naval Aviation News*, November 1951, 12; Ser 075 & 001 'Action Report for period 4 September through 13 September 1952', memorandum from Commanding Officer USS *Sicily* to CNO, 13 November 1952, OAB.
16. 'HMS *Glory* - Report of Proceedings, 26 April -11 September 1951', report from Commanding Officer, 22 August 1951, ADM 116/5795.
17. Signal 101240Z, Commander-in-Chief, Far East Station [CINCFES], 11 July 1950, ADM 116/6342.

unquestionably correct in the circumstances.'[18] Moreover, the only weapons which either type of aircraft could carry were 60 lb rockets, since a wind speed of thirty four knots over the deck was required to launch any aircraft armed with 500 lb bombs. *Triumph* was also ten knots slower than the US carriers - twenty-three knots at full steam compared to thirty-three - a condition made worse by a faulty propeller shaft.

The shortcomings of British carrier aviation in Korea at this time was also highlighted by the part played in the United Nations amphibious landings at Inchon in September 1950. *Triumph*'s aircraft conducted special reconnaissance and covering missions for the attack force prior to D-day and interdiction and blockade patrols on the day of the assault. Nevertheless, *Triumph* was limited by the number of operational aircraft available - seldom more than twelve - which meant a small CAP and blockade patrol was often the maximum she could achieve.[19] Although General MacArthur generously signalled to Admiral Andrewes that the conduct of his units during the landings had 'added another glamorous page to the long and brilliant history of the Royal Navy,'[20] the performance was probably more accurately described by Andrewes as 'not great' but 'useful.'[21] When *Triumph* was finally sent to join the west coast blockade force established under Admiral Andrewes in August 1950, her aircraft were used to better effect than when working in company with the larger and faster American carriers.[22]

British carrier aviation was able to make a more positive contribution to joint operations in April 1951, when HMS *Theseus* (which had replaced *Triumph* in October 1950) and USS *Bataan* temporarily replaced the heavy carriers of the Seventh Fleet on

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18. Ibid., 'Report of Proceedings, 2-5 July, 1950', 21 July 1950 and 'Report of Proceedings, 5-22 July, 1950', 22 July 1950, ADM 116/6224; 'Second Report of Proceedings', 5 August 1950, ADM 116/5794. The remainder of this paragraph is based on these sources.
19. 'Eighteenth Report of Proceedings', 15 October 1950, ADM 116/5794.
20. Routine Report No. 2, 17 September 1950, ADM 116/5777.
21. 'Eighteenth Report of Proceedings', 15 October 1950, ADM 116/5794.
22. Letter from Admiral Brind to Admiralty, 19 September 1950, ADM 116/6224.

the east coast.[23] The increased radius and endurance of *Theseus*'s twenty one Sea Furies and twelve Firefly V's allowed her to take part in interdiction of enemy troop concentrations, close air support of land forces and armed reconnaissance. *Theseus* flew a total of 276 operational sorties, compared to *Bataan's* 244, causing Admiral A.K. Scott-Moncrieff, Andrewes successor in Korea, to proclaim:

> ...that the operations of *Theseus* have been an inspiration to the US carriers out here, and it is noticeable that for the first few days after the return of TF 77 carriers to their own parish they were provoked into flying over 200 sorties in a day for the first time.

However, as Captain W.K. Edden, the Director of Tactical Staff Duties, reminded his colleagues at the Admiralty, there were 'certainly no grounds for complacency.'[24] The Sea Furies and Firefly V's were undoubtedly a great advance over the Seafires and Firefly I's, but they still had serious limitations. Although no difficulties were actually experienced in operating in company, the difference in endurance between the RN's Fireflies and USN's Corsairs, as well as the smaller size and slower speed of the British carrier, made the exercise 'inconvenient' for the crew of *Theseus*.[25]

The British naval aircraft, for example, lacked flexibility in their armament load by comparison with the USN aircraft. Both the Skyraiders and Corsairs could carry mixed loads of bombs, rockets and drop tanks and be catapulted with any of them. But, as the Royal Navy's Director of Naval Air Warfare, explained:

> there is a tendency in British Naval Aviation in Korea to select the aircraft weapon to suit the landing circumstances in a carrier rather than the tactical situation at the target. The lesson to be learned is that the facilities for handling different air armaments on our aircraft and in our carriers, must be drastically improved so that it is equally easy to launch each sortie with the best weapon for

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23. 'Routine Report No. 31', 9 April 1951, ADM 116/5778; 'Report of Proceedings 9-20 April, 1951', 16 May 1951, ADM 116/6224; Report of Experience in Korean Operations, January -June, 1951', 27 July 1951, ADM 116/6230. The remainder of this paragraph is based on these sources.
24. Minute by DTSD, February 1952, ADM 116/6230.
25. 'Report from Commanding Officer for period 26 April - 7 May', 7 May 1951, ADM 116/5795.

the job in hand.[26]

The aircraft also lacked the multichannel Very High Frequency (VHF) radios used in US naval aircraft, restricting their flexibility for operating under local shore based Air Force control.

*Theseus* was only able to carry twenty-two aircraft, including two squadrons that were equipped entirely with obsolete aircraft, the last of their kind in the front line. Increasing the total number of aircraft on the other light fleet carriers to thirty-three would also involve a lot of 'scratching around' to find aircraft and aircrew, and even then, there would still not be enough aircraft available to fly offensive missions after the necessary CAP and ASP tasks had been fulfilled.[27]

Indeed, the British light fleet carriers found it difficult to carry out offensive missions after the necessary defensive duties had been undertaken. Fifty-six per cent of *Theseus*'s sorties, for example, were devoted to local defensive tasks, compared to twenty-seven per cent for the larger American carriers.[28] Moreover, *Theseus*'s authorized stowage capacity for bombs and rockets was also inadequate for the task in hand and further limited the duration and scope of her operations. Nearly three times the normal outfit of 60 lb rockets were fired, necessitating a certain degree of improvisation. More significantly, there had been no serious air opposition during this period, but if enemy jets had attacked, the Sea Furies - the interim fighter before the Sea Hawk jets came into service - would have been 'useless' against them.[29]

After January 1951, and for the remainder of the war, British and American carriers began operating alternately on the west coast (see figure 5.2). For the Royal Navy at this time, there was no such thing as a small war, not even a limited war, and the commitment

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26. Minute by Captain A.S. Bolt, 8 January 1952, ADM 116/6231.
27. Minute by DAOT, 7 January 1952, ADM 1/22667.
28. Stephen Prince, 'The Contribution of the Royal Navy to the United Nations Forces During the Korean War', *Journal of Strategic Studies*, vol. 17, no. 2 (June 1994), 112.
29. Minute by DAOT, 7 January 1952, ADM 1/22667.

to operating even a single light fleet carrier on the west coast was proving to be a steady drain on resources. As Captain A.S. Bolt of *Theseus* explained: 'A carrier operating alone must obviously operate at high intensity or all its effort will be absorbed in protecting itself.'[30]

***Fig. 5.2 TG 95.1: British and American carriers and aircraft operating on the west coast of Korea, 1950-1953***

| GREAT BRITAIN | | UNITED STATES | |
|---|---|---|---|
| <u>TRIUMPH</u> (*Colossus* class) | | <u>BATAAN</u> (CVL) | |
| Jun-Sep 1950 | Firefly I<br>Seafire 47 | Jan-Jun 1951<br>May-Sep 1952 | Corsair<br>Guardian<br>Avenger<br>Sikorsky S.55 |
| <u>THESEUS</u> (*Colossus* class) | | <u>SICILY</u> (CVE) | |
| Oct-Apr 1951 | Sea Fury<br>Firefly V | Jun-Sep 1951<br>Sep-Dec 1952 | Corsair<br>Guardian<br>Avenger<br>Sikorsky S.55 |
| <u>GLORY</u> (*Colossus* class) | | <u>RENDOVA</u> (CVE) | |
| Apr-Sep 1951<br>Jan-May 1952<br>Nov 1952-May 1953 | Sea Fury<br>Firefly V<br>Dragonfly III | Sep-Dec 1951 | Corsair<br>Avenger<br>Sikorsky S.55 |
| <u>HMAS SYDNEY</u> (*Majestic* class) | | <u>BADOENG STRAIT</u> (CVE) | |
| Sep 1951-Jan 1952 | Sea Fury<br>Firefly V | Feb-May 1952<br>Dec 1952-Jan 1953 | Corsair<br>Guardian<br>Avenger<br>Sikorsky S.55 |
| <u>OCEAN</u> (*Colossus* class) | | <u>BAIROKO</u> (CVE) | |
| May-Oct 1952<br>May-Nov 1953 | Sea Fury<br>Firefly V | Dec 1951-Feb 1952<br>Feb-Jul 1953 | Corsair<br>Avenger<br>Sikorsky S.55 |

Source: B.R. 1736 (54) *British Commonwealth Naval Operations Korea, 1950-1953* (MOD, 1967), Appendix B, 299; Grossnick, *United States Naval Aviation, 1910-1995* (Washington, D.C.: Naval Historical Centre, 1995), Appendix 25 'Carrier, Carrier Based Squadrons and Non-Carrier Based Squadron Deployments During the Korean War', 699-703.

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30. Captain A.S. Bolt, 'HMS 'Theseus' in the Korean War, and some Special Problems of Naval Aviation in that Theatre', *Journal of the Royal United Service Institute*, vol. 96 (November, 1951), 556.

The success of the British light fleet carriers in performing their various tasks was also qualified by the fact that practically no opposition from enemy surface vessels, submarines or air forces was encountered; the only serious opposition they met came from shore batteries. The Naval Staff history of British Commonwealth naval operations in Korea concluded that the performance of the carriers had been 'rendered possible only by the virtual absence of enemy air activity. Had there been opposition on an appreciable scale so much effort would have been required for fighter defence and escort that offensive operations would have been severely curtailed.'[31]

In the effort to provide air support and play the part of a de facto fleet carrier, a lot of improvisation with the available equipment had been undertaken. Forty-five gallon drop tanks had been fitted to the Sea Furies and fifty-five gallon tanks to the Fireflies to increase their endurance. However, aircraft so fitted needed to be catapulted, which eventually rendered the catapult unusable. For a time, *Theseus* therefore had to operate aircraft without rockets or bombs and reduce the size of her deck park by moving six Fireflies to Japan.[32]

Nevertheless, an impressive number of sorties were achieved - in an eight day period during December 1950, *Theseus* flew 332 sorties without accident or damage - but the strain on both the ships and crew could not be sustained. In December 1950, Admiral Andrewes therefore requested that a second carrier be provided off the west coast, so that repairs - particularly to the overworked catapult - and other maintenance could be undertaken.[33] In January 1951, HMS *Theseus* was relieved by the American light fleet carrier, USS *Bataan*, and a cycle of nine days on/nine days off was permanently instituted.

The desirability of operating at least two carriers in Korea, 'to make worthwhile the

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31. B.R. 1736 (54) Naval Staff History 'British Commonwealth Naval Operations Korea 1950-53' (London: MOD, September 1967), 286.
32. 'Twenty-Third Report of Proceedings', 10 December 1950, ADM 116/5794.
33. 'Routine Report No. 15', 18 December 1950, ADM 116/5777.

effort we are spending on Naval aviation in this theatre', had long been recognized by the British Naval Staff, as was the need for more modern fighters to counter any potential air opposition.[34] After China's intervention in the war in November 1950, concern at the prospect of enemy MIG 15 jets attacking ships and aircraft in Korean waters increased. The Royal Navy's sense of vulnerability was heightened. 'Should the Communists discover,' Captain Bolt, now the Director of Naval Air Warfare argued, 'as they are likely to do with their increasing scale of air reconnaissance, that we are in the habit of keeping a single light fleet carrier operating in the Yellow Sea, they will be sorely tempted to strike at it.'[35] Nonetheless, it would not be possible to deploy British naval jet fighters in Korea until late 1952, when the new fleet carrier, HMS *Eagle*, with Supermarine Attackers was expected to be available. However, the Attacker was inferior to the MIG 15 and *Eagle* would have to operate as part of the US Fast Carrier Task Force. This was considered unacceptable by the Naval Staff, since *Eagle* would need to carry at least seventy aircraft - 'a very large proportion of the total Fleet Air Establishment' - and it would involve deploying 'our best fighting ship...at very great distance from her war station in an area for which we are not responsible in war.'

In the event that enemy air opposition did materialize, therefore, it was considered that the best option would be to withdraw the light fleet carrier to the east coast where it could operate in the vicinity of the US carriers and take advantage of the cover which would be provided by USN or US Air Force jet fighters. In the meantime, the British carrier would continue to operate off the west coast of Korea.

When that threat did materialize in July and August 1952, with attacks by Chinese MIG's on RN Fireflies and Sea Furies, the question of replacing the British carrier in Korea with one equipped with more modern aircraft or withdrawing it altogether came up for renewed discussion. The Admiralty were particularly concerned by the arrival in

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34. Signal 101240Z, CINCFES, 11 July 1950, ADM 116/6342.
35. Minute by Director of Naval Air Warfare [DAW] and DAOT, 14 December 1951, ADM 1/24068. The remainder of this paragraph is based on this source.

Manchuria of IL.28 twin-engine jet bombers, capable of carrying a 4,000 lb bomb load more than 500 miles out to sea. Owing to delays in the carrier and aircraft programmes, however, it was not possible to provide Sea Hawks off Korea until the spring of 1954 when the new light fleet carrier, HMS *Centaur*, would be available. The Plans Division therefore suggested that if the air defence of shipping could be provided by the US Navy or US Air Force, the British carrier should be withdrawn from Korea. In two and a half years of operating in Korea, the carriers had gained valuable experience, but:

> there are now strong military reasons for withdrawing our carrier from operations off the west coast of Korea in that the task being fulfilled in support of shore operations does not justify the risks being run. In addition, this carrier is unable to provide effective fighter protection to our naval forces...owing to our lack of jet fighters.[36]

There were also strong logistic and personnel grounds for withdrawing the carrier. It was widely felt that even though they were participating in a war, the naval fighter programme still only had second priority to the RAF aircraft programme. 'When the purse strings are loosened at a threat of danger,' explained Captain Bolt, 'the state of the RAF is usually found to be in more urgent need of attention than the Royal Navy. Priority is therefore given to satisfying the needs of the RAF.'[37]

It was therefore considered unlikely that Sea Hawks would be available for *Centaur* unless they received super priority.[38] A paper by the Plans Division in May 1952 examining the availability of naval aircraft for war in 1952 estimated that the maximum number of jet aircraft that could be deployed in a short war was twenty seven, out of a total front-line air establishment of 254.[39] 'The plain fact', concluded Bolt, 'is that we do not have enough naval air strength to meet even vital commitments and must therefore

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36. Minute by D of P, 24 December 1952, ADM 1/24068.
37. Minute by DAW, 14 November 1951, ADM 1/22737.
38. Minute by DAW, 29 December 1952, ADM 1/24068.
39. 'The Deployment of Carriers and Allocation of Naval Aircraft in War 1952', 29 May 1952, ADM 1/24065.

lean heavily on the USN.'[40] Finally, maintaining a carrier in Korea, at time when the Royal Navy was turning over to new carriers capable of operating jet aircraft and running down personnel, was also proving very expensive in terms of manpower.[41]

The withdrawal of the carrier from Korea was also one of the measures being considered in the Radical Review, an examination by the Chiefs of Staff of the size and shape of Britain's defence effort after 1953.[42] The COS and the Admiralty came to substantially the same conclusion; that although the military dividend of operating the carrier 'was in no way commensurate with the premium', the political implications of withdrawing the carrier were such that it would be inadvisable to do so. In the first place, it would probably be regarded as a breach of faith among the western allies, 'reflecting unfavourably on our manners, morals and courage.'[43] Second, it would have a particularly adverse effect on British prestige in the United States and prejudice the chances of influencing American defence policy in the Far East.[44] Finally, it was considered undesirable not to have a carrier on station in the Far East available for the defence of Hong Kong or to support possible requirements for military assistance in Indo-China.[45] A British Commonwealth carrier was therefore to remain on station in Korean waters until November 1953, four months after the signature of the armistice agreement. Altogether nearly 23,000 operational sorties were flown.[46]

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40. Minute by DAW, 26 September 1952, ADM 1/24065.
41. Minute by D of P, 24 December 1952, ADM 1/24068.
42. JP (53) 21 (Final) 'Radical Review - Reduction of the United Kingdom Contribution in Korea', 30 January 1953, DEFE 6/23.
43. Minute by Director of Operations, 6 January 1953, ADM 1/24068.
44. JP (53) 21 (Final), 30 January 1953, DEFE 6/23.
45. Signal 090811Z, CINCFES to Admiralty, 12 February 1953, ADM 1/24068.
46. The Australian light fleet carrier, HMAS *Sydney*, operated off the west coast of Korea between September 1951 and January 1952. Britain's request to the Canadian Navy to send the light fleet carrier, HMCS *Magnificent*, to Korea to relieve the British carrier were turned down on the grounds that they did not have enough aircraft or aircrew. 'HMS *Magnificent* - Turn of Duty in Korea', note by Fifth Sea Lord to First Sea Lord, 27 January 1953, ADM 205/88.

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For the most part, naval operations on the east coast of Korea were the responsibility of the US Navy although, as has already been noted, British carriers did at times participate in joint operations in and around the Sea of Japan. The American naval contribution to UN operations in Korea was much larger than the British - over the course of the three year conflict, sixteen different carriers - including six CVA's - undertook tours of duty in Korea (figures 5.2 and 5.3).

As on the west coast of Korea, the American carriers performed a variety of tasks which, in the absence of serious enemy air, submarine or other opposition at sea, were a routine but necessary part of daily missions. Close air support of ground forces, rail and road interdiction, shore bombardment and blockade for instance, had not previously been regarded as a primary function of the USN's carriers, particularly the large fleet carriers. Though it may not have been considered 'typical' of carrier employment (particularly when compared to World War II campaigns), the experience gained in Korea did furnish much valuable information on carrier capabilities and limitations. As the first report evaluating the USN's operations in Korea observed:

> Had serious opposition been met, particularly in the form of submarine warfare and air warfare, the nature of the Korean War undoubtedly would have been entirely different, but since this opposition did not occur, the Korean War constituted in effect an almost perfect laboratory for the test of exploitation abilities of both sea and air power as they currently exist.[47]

Indeed, the experience of fighting in Korea taught the US Navy many valuable lessons, not only about the operational capabilities of their carriers - both fleet and escort, but also about the role of seapower in the postwar era. Korea represented the only war experience of the so-called modern jet era and, as such, it was hugely

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47. Korean War. US Pacific Fleet Operations. Commander-in-Chief US Pacific Fleet. Interim Evaluation Report No. 1. Covering period 25 June to 15 November 1950 (vol. I), 10 April 1951, RG 428/Department of the Navy/Box 1213.

***Fig. 5.3 US Aircraft Carriers and Aircraft Operating on the East Coast of Korea, 1950-1953 (in addition to those listed in fig. 4.2)***

| CVA | | CV | |
|---|---|---|---|
| <u>VALLEY FORGE</u> | | <u>PHILIPPINE SEA</u> | |
| May 1950-Apr 1951 | Panther | Jul 1950-Jun 1951 | Panther |
| Oct 1951-Jul 1952 | Corsair | Dec 1951-Aug 1952 | Corsair |
| Nov 1952-Jun 1953 | Skyraider | Dec 1952-Aug 1953 | Skyraider |
| | Sikorsky S.55 | | Sikorsky S.55 |
| <u>BOXER</u> | | <u>LEYTE</u> | |
| Aug-Nov 1950 | Corsair | Sep 1950-Feb 1951 | Panther |
| Mar-Oct 1951 | Skyraider | | Corsair |
| Feb-Sep 1952 | Panther | | Skyraider |
| Mar-Nov 1953 | Banshee | | Sikorsky S.55 |
| | Sikorsky S.55 | <u>PRINCETON</u> | |
| <u>ESSEX</u> | | Nov 1950-Aug 1951 | Panther |
| Jun 1951-Mar 1952 | Panther | Mar-Nov 1952 | Corsair |
| Jun 1952-Feb 1953 | Banshee | Jan-Sep 1953 | Skyraider |
| | Corsair | | Sikorsky S.55 |
| | Skyraider | <u>BON HOMME RICHARD</u> | |
| | Sikorsky S.55 | May-Dec 1951 | Banshee |
| <u>KEARSAGE</u> | | May 1952-Jan 1953 | Panther |
| Aug 1952-Mar 1953 | Banshee | | Corsair |
| | Panther | | Skyraider |
| | Corsair | | Sikorsky S.55 |
| | Skyraider | <u>ANTIETAM</u> | |
| | Sikorsky S.55 | Sep 1951-May 1952 | Panther |
| <u>ORISKANY</u> | | | Corsair |
| Sep 1952-May 1953 | Panther | | Skyraider |
| | Corsair | | Sikorsky S.55 |
| | Skyraider | | |
| | Banshee | | |
| | Sikorsky S.55 | | |
| <u>LAKE CHAMPLAIN</u> | | | |
| Apr-Dec 1953 | Banshee | | |
| | Corsair | | |
| | Skyraider | | |
| | Panther | | |
| | Sikorsky S.55 | | |

Source: Grossnick, *United States Naval Aviation, 1910-1995* (Washington, D.C.: Naval Historical Centre, 1995), Appendix 25 'Carrier, Carrier Based Squadrons and Non-Carrier Based Squadron Deployments During the Korean War', 699-703.

important. One of the most significant and, from the navy's point of view, beneficial lessons learned was that seapower allowed the United States to project its military strength. While contemporary schools of thought deprecated seapower and exalted the potentialities of air power, Korea appeared to confirm the continued utility of carriers in warfare and the importance of sea control. In the foreword to Cagle and Mason's 1957 history of the US Navy's role in Korea, Admiral Arleigh Burke, then the Chief of Naval Operations, argued that '*without* the capability to use the seas, the decision to intervene on a rocky peninsula half-a-world away would have been meaningless and unenforceable. *With* control of the seas, the decision was sound and reasonable.'[48]

Even allowing for partisanship in this point of view, control of the seas around Korea *did* enable the US Navy to play a vital supporting role for UN air and ground forces, including transporting the men and *matériel* required to support the forces in action. More fundamentally, however, the ability to exercise control of the seas showed that the carriers could provide a more suitable base for air operations, particularly in situations where land bases were not available.

The most celebrated of the USN's operations in Korea was the amphibious assault at Inchon in September 1950.[49] Conceived by General Douglas MacArthur, Commander in Chief of the United Nations forces, the landings at Inchon on the west coast of Korea were designed to land behind the North Korean lines, recapture Seoul, the South Korean capital, and advance across the 38th parallel. Primarily a US Marine Corps operation, an international force of some eighty-five warships (including HMS *Triumph*) also took part in the assault at Inchon. The USN contingent included two

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48. Malcolm W. Cagle and Frank A. Manson, *The Sea War in Korea* (Annapolis, M.D.: United States Naval Institute, 1957), v.

49. Cagel and Manson, *Sea War in Korea*, 76. Although Inchon was only twenty-five miles from Seoul and sixteen miles from Kimpo, the best airport in Korea, there were a number of disadvantages of landing at Inchon. These included a high tidal range that fell thirty foot twice a day; a narrow port channel with little room for turning; large mudbanks at low tide and the island of Wolmi-do which provided cover to enemy forces. In addition, there was considerable lack of secrecy about the assault, which was dubbed 'Operation Common Knowledge'. Ibid., 78-81.

escort carriers - *Sicily* and *Badoeng Strait* - and two fleet carriers - *Valley Forge* and *Philippine Sea*. Against all the odds - put at 5000-1 by MacArthur - the landings were a success.

In preparation for the assault, Panther jets from the US fleet carriers sealed off the Inchon-Seoul area, with wide ranging strikes along the west coast. At the same time, Corsairs from the escort carriers, supported by Skyraiders from *Valley Forge* and *Philippine Sea* neutralized the neighbouring island of Wolmi-do before striking Inchon itself. On the day of the landing (15 September) Corsairs from *Sicily* and *Badoeng Strait* continued the attack against Wolmi-do and supported the ground forces in the capture of Kimpo airport. By 17 September, the airfield had been captured and on 29 September, UN forces arrived in Seoul, finally crossing the 38th parallel on 7 October.[50]

Air support missions, such as that at Inchon, accounted for approximately forty per cent of the sorties flown by the USN's carriers. Armed reconnaissance missions - for example, rail and road interdiction - were responsible for about fifty per cent of sorties.[51] The navy's air interdiction missions were not always successful: the North Korean Army proved particularly adept at concealing their supply lines and keeping material and reinforcements moving, while the USN's aircraft lacked an all-weather and night flying capability that would enable twenty-four hour coverage.[52] Nonetheless, attacks such as those on power plants in the North of Korea by aircraft from *Valley Forge* in June 1952 demonstrated that carrier aircraft did have the capability of attacking targets deep in enemy territory.[53] US naval aviation fought a new type of air war in

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50. Lansdown, *With the Carriers in Korea*, 35-42.
51. 'Navy Fights New Type of War', Naval Aviation Confidential Bulletin, April 1951, NAHB.
52. The main problem for the USN in nigh operations was the lack of adequate surface search radar equipment and the limited number of 'night-equipped' aircraft. Korean War. US Pacific Fleet Operations. Chapter 5: Fast Carrier Operations. Third Evaluation Report (1 May-31 December 1951), OAB.
53. Korean War. US Pacific Fleet Operations. Carrier Operations. Chapter one: Major Lessons. Interim Evaluation Report No. 4 (1 January-30 June 1952), OAB.

Korea - one fought mostly over land. The implications of this and other lessons learned during the Korean War, both for the USN and the Royal Navy, will be considered in the remainder of this chapter.

## II. The Influence of the Korean War on Anglo-American Carrier Aviation

### *Carrier Aviation and Western Strategy*

Although the strategic environment in which British and American defence policy was formulated was significantly altered by the outbreak of war in Korea in June 1950, Western strategy at this time remained largely traditional in orientation, preferring to emphasize conventional rearmament over other nuclear options. While nuclear deterrence remained at the heart of Anglo-American defence strategy (and plans had been formulated for the use of nuclear weapons in a war against the Soviet Union should deterrence fail) strategy-makers in the early 1950s continued to envision a Third World War as a prolonged conflict in many stages, where the use of nuclear weapons would by no means be decisive.[54] Indeed, the Korean War served to *weaken* Anglo-American faith in the deterrent value of atomic weapons and in the rearmament effort that ensued, the emphasis was on the need to build-up conventional rather than nuclear armaments as the means to reinforce deterrence and counter the Soviet Union's growing atomic strength.

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54. See David Alan Rosenberg, 'American Naval Strategy in the Era of the Third World War: An Inquiry into the Structure and Process of General War at Sea, 1945-90', in Rodger, *Naval Power in the Twentieth Century*, 243.

On the eve of the Korean War, the role of the carrier had been under attack in both America and Britain from those critics who not only deprecated the strategic utility of carriers but also the value of seapower in modern warfare at all. In the United States, there had been an increasing reliance on the deterrent value of airpower, particularly strategic bombing, to fulfil the nation's defence requirements since 1948. The ceiling of $14.4 billion on the defence budget for Fiscal Year 1950, for example, had forced the reduction of conventional armaments and operations in favour of atomic ones.[55] The USN's carrier force was reduced from eleven fleet carriers to eight, and then six, the construction of the new heavy carrier, USS *United States*, was cancelled and the number of Carrier Air Groups was reduced from fourteen to nine. A moratorium was also called on further carrier conversions. As one commentator of this period has written, no longer was the United States Navy 'prestigious as the quarterback of the defense team and squeezed for three years in a row in its budget, the Navy was forced to shift from large carriers and heavy bombers to an antisubmarine role, to stress quality rather than quantity.'[56] At the start of the Korean War, therefore, only one carrier, the *Valley Forge*, was already deployed in the Western Pacific.

In Britain, long-term financial insecurity also meant that the Royal Navy's carrier force had been undergoing a process of contraction since 1945. On the eve of the Korean War, the Admiralty's plans for a wartime fleet within a £200 million financial limit, the 'Revised Restricted Fleet', included just six fleet carriers, four light fleet carriers and a front-line strength of 250 aircraft, with reliance placed on the United States Navy for providing half the forces for the North Atlantic and Mediterranean in wartime.[57] However, limits on defence expenditure - a total of £780 million for 1950 with the Admiralty's share fixed at £193 million - were gradually pushing back the date

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55. See Rosenberg, 'American Postwar Air Doctrine', 257.
56. Paolo E. Coletta (ed.), American Secretaries of the Navy vol. II 1913-1972 (Annapolis: Naval Institute Press, 1980), 810.
57. 'Revised Restricted Fleet', Paper B590, 23 May 1949, ADM 167/133.

of the navy's readiness for war.[58] With the future of naval aviation seemingly in the balance, there was considerable concern within the Admiralty that naval aviation might be 'a luxury we can no longer afford.'[59]

The Royal Navy's programme for carrier modernization and construction and the development of high performance aircraft was also under close scrutiny, by the anti-navy Minster of Defence, Emanuel Shinwell. Shinwell regarded the navy's programme as overlapping and duplicating the RAF's efforts. In particular, he questioned the utility of the navy's fleet carriers in modern warfare, arguing that greater reliance should be placed on the Americans in the event of war and that the Royal Navy's money could be better spent on ASW frigates and mine countermeasures vessels.[60]

Shinwell was supported in his campaign by the Royal Air Force, who feared that the Navy's growing interest in strike and fighter aircraft would encroach upon their role in national strategy. In April 1950, Sir John Slessor, the Chief of the Air Staff, therefore wrote to Lord Fraser, the First Sea Lord, suggesting that the RAF's Coastal Command and Naval Aviation be integrated into a joint maritime air force.[61] Slessor argued that not enough resources were being devoted to the submarine menace. 'As far as Naval Aviation is concerned,' he wrote, 'my own belief is that your plans allocate too much effort to carrier-borne fighters and strike aircraft and not enough to A/S aircraft and surface A/S escorts.'[62] The proposal was politely but firmly rejected by Fraser, who reasserted the navy's right to maintain maritime air forces in defence of sea communications.[63]

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58. DO (50) 5 'Statement on Defence', 27 January 1950, CAB 131/9.
59. 'Some Aspects of the Future of Naval Aviation', Captain E.H. Shattock, Commanding Officer HMS *Glory*, 22 February 1950, ADM 1/21827.
60. See for example the minutes of Shinwell's meeting with the COS Committee in May 1950, COS (50) 74th Meeting, 11 May 1950, DEFE 4/31.
61. Letter from Slessor to FSL, 19 April 1950, ADM 205/74.
62. Slessor reply to FSL, 12 May 1950, ADM 205/74.
63. Fraser reply to Slessor, 27 April 1950, ADM 205/74.

Nonetheless, the emphasis of the 1950 'Defence Policy and Global Strategy' paper on the air defence of Europe and the United Kingdom, together with the competing demands being placed on the aircraft industry, ensured that debate about the Royal Navy's carrier aviation programme remained strong.[64] Indeed, a Maritime Air Defence Committee was appointed by the COS in the summer of 1950 to investigate the whole question of maritime aviation.

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The outbreak of war in Korea in June 1950 was both sudden and unexpected and shocked Anglo-American defence planners sufficiently to review their assessments of the likely period of warning that could be expected before war occurred.[65] In Britain, the report of the Joint Planning Staff (JPS) on implementing Plan Galloper was used by the Chiefs of Staff as the occasion to point out to Ministers the material shortcomings of the armed forces in meeting an emergency in the short term.[66] If general war broke out in July 1951, the Chiefs argued, the whole of Europe would be overrun; Britain's air defences would not be able to meet the heavy air bombardment expected and it would be difficult to keep all ports and channels open. The material state of the Royal Navy would be similar to that existing in 1945; no new types of ship or weapon will have been put in service and no fleet carrier will have completed modernization. Until the end of 1952, only *Eagle* will be capable of operating modern aircraft.

The British Government agreed that the date by which the armed forces should be ready for war, hitherto set at 1957, should now be accelerated and duly increased the

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64. DO (50) 34 'Defence Policy and Global Strategy', 1 May 1950, CAB 131/9; DO (50) 47 'Size and Shape of the Aircraft Industry - Need for Planning to Preserve War Potential', 28 June 1950, CAB 131/9.
65. See for example COS (50) 102nd Meeting, 5 July 1950, DEFE 4/33.
66. JP (50) 68 (Final) 'Ability of the Armed Forces to Meet an Emergency', 15 July 1950, DEFE 6/13. The remainder of the paragraph is based on this document.

defence budget for 1950/1 and 1951/2 by £100 million.[67] Under pressure from the United States to take additional defence measures, however, a three-year rearmament programme costing £3.6 billion from 1951/2 to 1953/4, was authorised by the Cabinet in August 1950 and the services set about drawing up their increased production plans.[68] The Royal Navy's statement of requirements under the increase in defence expenditure was the so-called 'Fraser Plan' which, through a programme of new construction, conversions and modernisations, plus making good the deficiencies in equipment and stores, aimed at bringing forward the navy's state of readiness for war to 1955.[69] The Plan, which was only a modest reshaping of the 1949 'Revised Restricted Fleet', included an increase of sixty-three aircraft for the fleet between 1950 and 1954.

Significantly, the British defence establishment did not at this time actually believe that massive conventional rearmament for Europe was necessary. In March 1950 for example, a Joint Intelligence Committee (JIC) report on the likelihood of war with the Soviet Union concluded that there would be no risk until 1955-56.[70] Similarly, the JPS, considering the issue only ten days before the outbreak of war in Korea, did not believe that advancing the planning date from 1957 to 1955 would guarantee any earlier results in readying the services for war.[71] Even after the start of the Korean war, the First Sea Lord did not feel that from a military point of view there was any reason to suppose the Soviet Union would go to war before 1954, while the JIC considered that one of the greatest dangers of war being precipitated before that time might arise 'from impetuous

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67. DO (50) 15th Meeting, 24 July 1950, CAB 131/8.
68. CM (50) 52nd Meeting, 1 August 1950, CAB 128/18.
69. COS (50) 323 'The Future Shape and Size of the Navy', 24 August 1950, DEFE 5/23. See also DO (50) 81, 'Size and Shape of Armed Forces 1951-54', 12 October 1950, CAB 131/9.
70. JIC (50) 7 (Final), 13 March 1950 is discussed in COS (50) 47th Meeting, 22 March 1950, DEFE 4/30.
71. JP (50) 39 (Final) 'Implications of an Advance of the Possible Date of Outbreak of War', 15 June 1950, DEFE 6/12.

Rather than having to meet an imminent Soviet attack in Europe, therefore, the increase in defence expenditure and subsequent rearmament effort was in fact intended primarily to encourage American support for the continent and to strengthen alliance cohesion, particularly in meeting the demanding national force requirements of NATO's new Medium Term Defence Plan (MTP). Agreed by NATO members in October 1950, the MTP established 1954 as the date by which plans were to be completed. Britain was tasked with providing one fleet carrier, four light fleet carriers, 271 aircraft, five cruisers, 262 destroyers and frigates, forty-four escorts, fifteen submarines and 791 minesweepers. This was in addition to the naval forces British planners considered were necessary *outside* the NATO area, including one more fleet carrier, two light carriers and 175 aircraft.[73] Thus, as the Prime Minister, Clement Attlee, explained, increasing the defence budget would not only help meet the demands of war in Korea, but also 'give lead to the countries of the Western Union and the Atlantic Treaty.' Moreover, 'the United States might be prepared to increase assistance to Western Union countries if they were satisfied that the Western Union were doing all they could to help themselves.'[74] Indeed, the US had already intimated to the British Government that substantial American aid might be forthcoming in such circumstances.[75]

When Dean Acheson, the American Secretary of State, called for even greater defence expenditure by the NATO powers in December 1950, the British Government therefore set about formulating yet another expanded defence programme.[76] The Admiralty's production plans were stepped up, in the 'Accelerated Fraser Plan', now costing £1610 million.[77] To complete as far as possible the programme planned for 1954 by the end of 1952, a number of measures were to be taken. Front line aircraft

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73. Grove, *Vanguard to Trident*, 72.
74. DO (50) 15th Meeting, 24 July 1950, CAB 131/8.
75. COS (50) 117th Meeting, 27 July 1950, DEFE 4/34.
76. COS (50) 209th Meeting, 18 December 1950, DEFE 4/38.
77. 'Defence Preparedness', 29 December 1950, DEFE 10/65.

strength, for example, was to be increased from 180 to 230 by ordering more interim types already in production, notably the Attacker and Firefly VII, rather than wait for the planned delivery of new types. The total defence programme, costing £4.7 billion, was approved by the Cabinet in January 1951, while acknowledging its 'economic implications' for British trade.[78]

In the United States, the outbreak of war in Korea saw a similar and equally dramatic increase in defence expenditure and expansion of conventional military forces. The defence budget increased three-fold during the course of the conflict and in the first year alone, the size of the overall active fleet expanded by sixty-four per cent. The active number of large carriers increased from seven to twelve and the number of light and escort carriers from eight to fifteen. The number of operational aircraft also increased from 4,300 to 5,400 through the reactivation of many old World War II types.[79]

Like the increase in Britain's rearmament efforts, however, the expansion of the US military establishment was not restricted to providing forces for the Korean conflict alone. In September 1950, for example, nervousness about Soviet intentions in Europe saw the number of American ground forces in Western Europe increased and by 1952, the US Sixth Fleet in the Mediterranean had been permanently augmented by two attack carriers.[80] Indeed, the immediate origins of the United States rearmament effort beginning in 1950 lay less in the outbreak of war in Korea than in the National Security Council's review of national security policy, NSC 68, in March 1950.[81] The basis of the report was the Soviet Union's nuclear test explosion in August 1949 which 'greatly intensified the Soviet threat to the security of the United States', particularly the threat of atomic attack. The report's authors argued against relying upon a solely nuclear-

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78. CM (50) 7th and 8th Conclusions, 27 January 1951, CAB 128/19.
79. *Semiannual Report of the Secretary of Defense and Semiannual Report of the Secretary of the Army, Secretary of the Navy, Secretary of the Air Force, January 1 to June 30 1951* (Washington: United States Government Printing Office, 1951), 147.
80. Hagan, *In Peace and War*, 301.
81. NSC 68, *Foreign Relations of the United States*, 1950, vol. I, 234-92.

report was the Soviet Union's nuclear test explosion in August 1949 which 'greatly intensified the Soviet threat to the security of the United States', particularly the threat of atomic attack. The report's authors argued against relying upon a solely nuclear-orientated defence posture to guarantee American security, and in addition called for 'a substantial and rapid building up' of general air, ground and sea strength, not only to help deter war and survive an initial blow, but also to deal with 'Soviet or Soviet-directed actions' below the nuclear level.

The Joint Chiefs of Staff initial estimates of the forces required to support NSC 68 included nine CV/CVB, ten CVL/CVE and 5,668 operational aircraft in FY 1951, rising to twelve, fifteen and 6,559 in FY 1954 respectively.[82] However, with the Korean War appearing to vindicate NSC 68's predictions of future Soviet aggressiveness, it was decided that the planned FY 1954 force levels should be established no later than the end of June 1952.[83] The programme of the Department of the Navy was thus to be accelerated, particularly the conversion and modernization of carriers to handle modern aircraft. Four CV's were to be taken in hand for modernization in FY 1952 compared to two the previous year and one new 'supercarrier' - the nuclear aircraft capable USS *Forrestal* - was to be started in FY 1952, with one new carrier to be included in every subsequent defence budget.[84]

The decision of Congress to authorize the construction of USS *Forrestal*, a 57,000 ton carrier capable of operating 70,000 lb jet strategic bombers, represented a change in the fortunes of the US Navy. In April 1949, USS *United States*, the 'supercarrier' originally planned by the USN, had been cancelled by Louis Johnson, the Secretary of Defence, less than one week after it had been laid down. Justified publicly on economic grounds, the cancellation was nonetheless widely seen as an attempt by Air Force

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82. JCS 1800/133 'Force Requirements', 7 December 1950, File 370, sec. 28, RG 218/Decimal File/1948-50/Box 156.
83. Ibid.
84. JCS 1800/137 'Statement of Service Programs for FY 1951 and FY 1952', 5 January 1951, File 370, sec. 30, RG 218/Decimal File/1951-53/Box 123.

partisans to prevent the USN from undertaking a role in any strategic air offensive.

By 1951, a number of events had transpired to place the navy's demand for a new carrier back on the political agenda. In the first place, operations in Korea confirmed the need for carriers better equipped to launch and land the modern aircraft currently in production and under development.

Second, the report of the B-36 Hearings in March 1950 fostered a more pro-navy climate of opinion than at any other time during the previous five years. During the investigation of the USAF's B-36 procurement programme, the hearings had also examined the much wider question of the roles and missions of the navy and air force, especially naval aviation.[85] Although beset by controversy and intra-service disagreement (the so-called 'revolt of the admirals'), the hearing concluded that US air power - of which strategic bombing was only one aspect - was composed of Air Force *and* Navy and Marine air power. Although the report did not go so far as calling for the reinstatement of the supercarrier, the committee agreed that it had been a mistake to cancel the *United States*. The historian, Jeffrey Barlow, argues that the development of the *Forrestal*-class carrier was thus a direct result of the navy's testimony at the hearings on the need for carriers to fulfil a power projection role:

> the Navy's presentation convinced the committee that naval aviation had a vital role to play in the nation's defense strategy and set the stage for the revitalization of carrier aviation that may not have occurred without the revolt.[86]

The USN's role in forward, offensive operations was also confirmed - materially and in principle - in early 1951 by the addition of nuclear-capable aircraft to the Sixth Fleet in the Mediterranean. Although the AJ-1 Savage was too large to be permanently deployed on the carriers and did not carry nuclear components until 1953, their role was to attack Soviet submarine and surface bases within a 600-mile radius of the

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85. For further details on the Hearings, see Barlow, *Revolt of the Admirals*.
86. Ibid., 2

Mediterranean, Norwegian and Bering Seas.[87] In September 1951, the navy's attack-at-source mission was endorsed by the JCS in a statement on the 'Role of Carrier Forces' which asserted that:

> these forces represent the major striking power of the Navy and are primarily responsible for neutralizing at the source the enemy's offensive capabilities to threaten control of the seas. These forces will destroy enemy naval forces and shipping, attack naval bases, attack airfields threatening control of the seas, support amphibious operations and support the mining offensive. As additional tasks, the carrier striking forces will defend bases and vital areas against attack through the seas, as required.[88]

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The Korean War thus gave both the United States Navy and the Royal Navy the opportunity to demonstrate the strategic utility of the aircraft carriers, and thus strengthen the case for carrier aviation not only within their respective national defence plans, but also as part of the new allied strategy under NATO. Although the carriers had not been used in their primary missions - anti-submarine warfare, convoy protection, attack-at-source etc. - or in the open oceans of the Atlantic or Mediterranean, the operations of carriers in a sustained, limited war, within a fixed operating area and without any appreciable surface, submarine or air opposition showed how adaptable they were. Even if there was 'no opportunity to employ a weapons system on its primary mission', they could nonetheless be used 'for whatever [they] can contribute toward forwarding the business in hand.'[89] In particular, the British and American carriers had demonstrated their usefulness as bases for air operations in a conflict where land bases were not readily available and the effectiveness of their aircraft in providing direct support of ground troops.

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87. Rosenberg, 'American Postwar Air Doctrine', 265.
88. JCS 1800/166, 7 September 1951, quoted in ibid., 265.
89. 'The Future of Aircraft Carrier', memorandum by H.M. Dater, 28 September 1955, Carriers General, Box 2, Naval Aviation History Branch [NAHB], NHC.

The Korean War not only stimulated renewed interest in Anglo-American carrier aviation; it also had an important influence on the technical development of carrier aviation. In particular, the conflict reinforced the need in both navies for the development and conversion of aircraft carriers to continue apace. Neither the British light fleet carriers nor the American escort carriers working off the west coast of Korea, for example, were able to operate the new jet aircraft coming into service. Those USN carriers that were able to operate jets were also experiencing difficulties in landing these high performance aircraft. As Vice Admiral Gerald E. Miller, USN, reflecting on his experiences in the Korean War, commented:

> We made lots of mistakes; we were introducing jets into aviation at that time while we still had the straight deck carrier. We had all kinds of accidents and difficulties in using the airplanes with straight decks at that time - lots of miserable crashes, fires on the front ends of these carriers with planes going through the barriers.[90]

The catapults used in aircraft carriers also lacked sufficient energy and speed to launch jets under all weather conditions, especially in low wind conditions. The catapults of the older *Essex* class carriers, for example, were only marginally adequate for launching the F9F Panther and were not adequate for launching the new F2H Banshee when loaded.[91] New equipment developments would therefore be necessary to permit carriers to operate modern high performance aircraft.

Carrier modernization programmes had already been put into effect in both the Royal and United States navies, but the experience of operating unmodified carriers in war made the need to develop new carriers and modernise existing types all the more urgent. In Britain, the postwar carrier modernization programme approved in 1948 was planned to give the Royal Navy five fleet carriers capable of operating all types of naval

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90. Quoted in E.T. Wooldridge (ed.), *Into the Jet Age. Conflict and Change in Naval Aviation 1945-1974* (Annapolis, MD.: Naval Institute Press, 1995), 155.
91. 'Korean War. US Pacific Fleet Operations. Third Evaluation Report 1 May - 31 December, 1951', OAB.

aircraft by 1956.[92] However, by 1952 the modernization programme had become prohibitively expensive and - following the decision by the new Conservative government in January 1952 to spread the rearmament programme over four rather than three years - behind schedule.

Under pressure for further cuts, in June 1952 the Admiralty Board decided to discontinue the carrier modernization programme.[93] Although preserving the balance between carriers and their aircraft was essential, the cost of modernising fleet carriers was expensive - £10 million compared to about £15 million for a new carrier 'of improved *Hermes* type' or £20 million 'for one similar to *Eagle*'. Moreover, the time required for such a modernization (almost five years) was as long as that needed to build one new fleet carrier. With the exception of *Victorious*, which had been taken in hand for modernization in March 1950, plans to modernise the remaining existing fleet carriers (*Implacable*, *Indefatigable*, *Indomitable*) were abandoned. Instead, the Board approved plans to build a new fleet carrier of new design, 'in order to provide an up to date 'laboratory' for development purposes and for the operation of most advanced types of aircraft squadrons during this period of change.'

The Royal Navy's plans for a new fleet carrier had developed as part of the general defence build-up which followed the outbreak of war in Korea. However, the design of the new carrier had also been heavily influenced by the experience of operating with the US Navy carriers in Korea and by the expectation that they would do so again, probably operating USN aircraft as they had in the Second World War.[94] The new carrier's design approximated the standards of the latest USN carrier being designed - USS *Forrestal* - in several respects. Basic requirements included a long flight deck (1000

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92. Paper B560, 'New Construction and Modernization of Aircraft Carriers', 2 June 1948, ADM 167/131.
93. Board Minute 4587, 26 June 1952, ADM 167/140. The remainder of this paragraph is based on this source.
94. Minute by DTSD, 1 May 152; Minute by DAW, 22 May 1952 and Minute by D of P, 5 July 1952, in 'New Design Aircraft Carrier', ADM 1/24145.

feet), 55,000 ton displacement, 30 knot speed, and a capacity to handle aircraft up to 70,000 lb with landing speeds of 120-135 knots. This last requirement would enable the carrier to operate large strike aircraft, including a squadron of 'atomic bomb carriers.' It is more than likely that the Admiralty had in mind the NA 39 Buccaneer - the nuclear attack aircraft for which the requirement was issued the very same month that the Board approved in principle the construction of a new fleet carrier.

As will be seen in chapter seven, the Korean War also stimulated the development of new technologies and techniques, such as the angled deck and steam catapult, which would allow carriers to fully exploit the new aeronautical advances.

### *Naval Aircraft*

Some of the most far-reaching lessons or consequences of the Korean War, for both navies, came in the field of naval aircraft development. Although many of the changes in this field had been in effect for some time prior to the outbreak of the Korean War, the conflict nonetheless acted as a stimulus to further change and encouraged trends in naval aircraft doctrine that were already taking place. Of these, the gradual shift towards offensive fire power was perhaps the most significant.[95] To a large degree, this was an inevitable consequence not only of the development of jet aircraft but also of the creation of the NATO organization with its emphasis on offensive, forward strike operations. During the Korean War, a characteristic United States Carrier Air Group, for example, had evolved to include two jet fighter squadrons of F9F-2 Panthers; two piston-engine fighter squadrons of F4U Corsairs; one attack squadron of AD Skyraiders; and various special purpose aircraft for night attack and Airborne Early Warning (AEW).[96]

In the British navy, the formation of NATO reinforced the growing interest in the

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95. Friedman, *US Aircraft Carriers*, 21.

96. James A. Field, *History of United States Naval Operations: Korea* (Washington, D.C.: United States Government Printing Office, 1962), 48-49.

role of offensive strike aircraft in defending lines of communication, particularly as part of a British Atlantic strike fleet.[97] This contrasted sharply with the Board of Admiralty's decision in 1948 to give priority to ASW and fighter aircraft over strike types and yield all responsibility for offensive carrier operations to the United States Navy.[98] The tendency towards an offensive naval doctrine was reinforced by the report of the Chiefs of Staff Maritime Air Defence Committee in October 1950, which argued in support of the Royal Navy assuming a limited strike role, particularly in the Atlantic.[99]

The outbreak of the Korean War and the increased likelihood of Britain becoming involved in other limited wars and incidents where a close air support role for naval aviation may predominate, provided the opportunity for the Admiralty to reassess the peacetime proportions of the Fleet Air Arm. There was now an obvious need for more strike aircraft in the FAA, capable of carrying a larger bomb load.[100] Neither the Firefly V nor the Sea Fury used during the Korean War was suitable for striking tactical targets ashore. Although both aircraft were capable of carrying two 1,000 lb bombs, they were restricted for most of the war to using 500lb bombs - apparently excess stock from World War II.[101] In any case, the Firefly V and the Sea Fury compared unfavourably with the USN's Skyraider, which was capable of carrying bombs up to 10,000 lb from runways and 7,500lb from carrier decks.[102]

In the summer of 1952, the Board of Admiralty therefore approved a change in the proportions of peacetime aircraft complements which increased the percentage of strike aircraft from 10 per cent of a front line air establishment (FAE) of 150 to 17.5 per cent of a FAE of 300. The percentage of ASW aircraft was correspondingly reduced, from

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97. Grove, *Vanguard to Trident*, 98.
98. 'The Roles of the Navy in War', 20 July 1948, ADM 205/69.
99. Grove, *Vanguard to Trident*, 67.
100. Minute by D of P, DAW and DAOT, 29 August 1951, ADM 1/25076.
101. Prince, *The Royal Navy and the Korean War*, 113.
102. 'Korean War. US Pacific Fleet Operations. Third Evaluation Report (1 May-31 December 1951), OAB.

40 per cent to 20 per cent, to reflect the introduction of AEW aircraft (9 per cent).[103] At the same time, a requirement was issued for a long-range, low-level strike aircraft with a nuclear attack capability and suitable for land targets, the NA 39 Buccaneer.[104]

Questions also began to be asked about whether the policy of training all British carrier air groups for ASW and trade protection was correct.[105] Since World War II, the training of aircrews had been based on the assumption that the next war would be divided into two phases: Phase I lasting two years in which Naval Aviation's role would be trade protection; and Phase II, the come back, when the carriers would support the army in offensive operations.[106] Accordingly, the support of ground forces had received a low priority in aircrew training, an omission demonstrated in Korea where it took on average two months to work up each relieving carrier before it could operate effectively in support of the army. Although it had never been considered a primary task for the carriers to support the army flanks, both the Second World War and now Korea had demonstrated that it was, in fact, a requirement, and with the new NATO emphasis on high priority being accorded to the support of ground troops, the Royal Navy's training plan was gradually altered to reflect this.[107]

The Korean conflict also made it clear that it was already necessary to improve the jet fighters that were beginning to come into service. In the first instance, the operations of the USN jets in service in Korea - the F9F-2 Panther and the F2H Banshee - revealed that they were unable to carry a sizeable load of rockets or bombs over any distance. In this respect, even the load carrying and endurance capabilities of the World War II vintage Corsairs was much more satisfactory, while the jet aircraft could best be used in

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103. Memorandum by DAW, DAOT and D of P, 14 August 1952, ADM 1/25076.
104. Grove, *Vanguard to Trident*, 98.
105. Memorandum by P.W. Brock, DOD, 'Versatility of Naval Air Power', 24 November 1950, ADM 1/22667.
106. See the minute by DAOT, 7 January 1953, ADM 1/22667.
107. Minute by First Sea Lord, 1 May 1952, ibid.

a supporting role.[108]

Nonetheless, with the appearance of the first Chinese-operated MIG-15's in late 1950, it was also apparent that jet aircraft, and more of them, were still needed to fight other jets. Although relatively few skirmishes occurred between the enemy jets and the American and British naval aircraft, those that did take place made it clear that neither the Royal Navy's Sea Furies nor the USN's Corsairs could provided adequate defence against an attack. In this respect, however, even the US Navy's jets were inadequate for the task. The Panther, for instance, was a relatively low performance jet fighter and no match for the MIG-15. The fact that many Panthers managed to survive their encounters with the MIG's was put down more to the inexperience of the MIG pilots than the superiority of the Panthers.[109] As one USN pilot commented, 'the MIG-15 completely outclasses the F9F. The Panther possibly could out-turn the MIG, but that's purely defensive and you can't fight a war that way.'[110] The Banshee was the only new type of aircraft in action during the Korean War, and although it was superior to the Panther in every respect, its limited Mach number was also considered to place it at 'extreme disadvantage when matched with the MIG-15,' especially in speed, rate of climb and ceiling.[111]

Following their encounter with the MIG's, the Royal Navy's aircraft on the west coast had begun operating under cover of the US Air Force jets whenever possible.[112] Although the result of these encounters had on balance been favourable to the Sea Furies, it was also appreciated that this was largely due to the fact that the MIG's 'were

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108. 'Prop Fighters Blast Koreans', *Naval Aviation News* (September 1950), 8; 'Korean War. Commander in Chief US Pacific Fleet. Interim Evaluation 25 June-15 November 1950', General Records of the Department of the Navy [RG 428], Box 1213; Woolridge, *Into the Jet Age*, 160.
109. Cagle and Manson, *The Sea War in Korea*, 473.
110. 'This is War', *Naval Aviation News Confidential Bulletin*, August 1951, 32.
111. 'Korean War. US Pacific Fleet Operations. Third Evaluation Report 1 May-31 December 1951', OAB.
112. 'HMS *Ocean* - Report of Proceedings', 25 August 1952, ADM 116/5857.

stupid enough to sacrifice height and remain at low altitude to 'mix' it with the Furies', who had superior slow speed manoeuvrability.[113] The first British naval jet-propelled fighter, the Sea Hawk, did not come into service until 1953, but it was also outclassed by the MIG-15. The Royal Navy's encounter with the Soviet-built jets therefore acted as a stimulus to the production of better jet fighters; in particular, the N.113 Scimitar - a swept-wing jet fighter-bomber in service in 1958 - and the DH.110 Sea Vixen - an all-weather fighter in service in 1959 - which were capable of penetrating enemy territory (see Appendix).[114]

The usefulness and ubiquity of helicopters for fulfilling a wide variety of naval tasks, especially search and rescue, planeguards, reconnaissance and minespotting, was also demonstrated during the Korean War and encouraged both navies to bring them more rapidly into service. Although the British and United States navies had both formed their first operational helicopter squadrons in 1948, neither service displayed any real enthusiasm for the rotary wing aircraft as an operational military vehicle until its versatility was demonstrated in the Korean conflict. Its success in ship and shore operations was such that the USN, taking advantage of the increase in funds following the outbreak of the Korean War, immediately expanded its list of planned uses for helicopters to include ASW and spotting missions and ordered an increase in the helicopter inventory from 120 in June 1950 to 335 for 1952.[115]

The Royal Navy had also been impressed with the performance of helicopters in Korea, especially in the rescue of downed pilots. Although they did not have any of their own in Korea - a USN-supplied and operated helicopter, a Sikorsky S.55, had been loaned to the British carriers since April 1951 - supporting operations in the Far East with helicopters had been given top priority and in June 1951, a British Dragonfly Mark

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113. Ibid.; Grove, *Vanguard to Trident*, 148.
114. Crowe,'The Policy Roots of the Modern Royal Navy', 131.
115. Ser 0571P50 'Helicopter Program', memorandum by Deputy Chief of Naval Operations (Air), 31 January 1951, Strategic Plans Division Records [SPD], Box 262, Folder A4-1, OAB.

III was shipped to the area. However, production delays and a shortage of spares handicapped operations by these aircraft and prevented the Royal Navy from equipping all its carriers with helicopters until a British-built version of the S.55, the Westland Whirlwind, entered service in Malaya in October 1952.[116]

### *Anglo-American naval cooperation*

The Korean War had one very significant and overarching consequence for Anglo-American carrier aviation. It brought the United States Navy and the Royal Navy into even closer strategic cooperation. Building further on the level of collaboration that had existed before 1950, the Korean War reconfirmed and strengthened the relationship that the two navies had been cultivating since 1945. The harmony in operating procedures and tactics that had developed was given greater impetus by the experience of operating together in war and led to calls for even greater standardization between the two navies.[117] American signals and tactics had been adopted with ease and in spite of their operating limitations, the British carriers had experienced no difficulties in working alongside the US carriers, either on the east coast or the west. The conflict had been a valuable test-run for the NATO command organisation in which the United States was dominant and served as a model for future Royal Navy-United States Navy cooperation.[118]

However, at the beginning of the Korean War, many in the United States believed that any contribution Great Britain could make to the military effort would only be necessary or important for its symbolic value, especially for its effect on public

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116. 'HMS *Ocean* - Report of Proceedings, May-June 1952', letter by Admiral Scott-Moncrieff, 20 June 1952, ADM 116/5858.
117. 'HMS *Glory* - Report of Proceedings, 26 April-11 September 1951', report from CO, 22 August 1951, ADM 116/5795.
118. Maloney, *Securing Command of the Seas*, 200.

opinion.[119] At the start of the Korean War for instance, the US Chief of Naval Operations, Admiral Forrest Sherman, signalled to the First Sea Lord, Lord Fraser, that the Royal Navy should not weaken its position in the West by diverting large forces to the East as a result of Korean operations, particularly since US naval reinforcements were on their way.[120] Although Sherman was undoubtedly being mindful of the already precarious strategic position of the allies vis-à-vis the Soviet Union in Europe, American naval opinion at this time generally did not think that any other navy was comparable to the United States Navy.

In particular, it was felt that the air arm of the Royal Navy could not be close to that of the USN.[121] As the British Director of Air Organization and Training, Captain K.S. Short, conceded, 'it is no secret that the United States Navy has regarded Royal Navy aviation as amateur and weak.'[122] During the course of the Korean War, however, it soon became clear that, if Britain's military contribution was not quite as large as that made by the US armed forces and her navy was not quite equal, quantitatively or qualitatively, to the USN, Britain was nevertheless a 'dependable ally and partner', whose material assistance and practical knowledge was an indispensable asset in any war.[123]

In this respect, Britain's contribution to the United Nations carrier forces fighting in the Korean War was invaluable. Assigned to the west coast, for lack of enough ships or aircraft to take advantage of the more numerous targets on the east coast, British carrier aviation's main task of blockade, combat air patrols, anti-submarine patrols and air interdiction was often considered dull and arduous, providing 'few exciting incidents to

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119. Ra Jong-yil, 'Special Relationship at War: The Anglo-American Relationship during the Korean War', *Journal of Strategic Studies*, vol. 7, no. 3 (September 1984), 310.
120. COS (50) 108th Meeting, 13 July 1950, DEFE 4/33.
121. Reminiscences of Vice Admiral George C. Dyer, USN, interview by John T. Mason, April 1969-May 1971, OAB.
122. Minute by DAOT, 10 December 1951, ADM 116/6231.
123. Telegram from Sir Oliver Franks to Younger, document no. 25, *DBPO*, Series II, vol. IV, 76.

relieve the monotony for those engaged or indeed for the chronicler to write about.'[124] Nonetheless, they were an essential part of the UN operations and were recognised as such by the United States Navy.[125] As Vice Admiral Ralph Ofstie, the Commander of the US Naval Forces in the Far East during 1951-52 commented:

> these West coast carrier aircraft, though few in number have been markedly effective in destroying the many small ships, junks and sampans attempting to operate close inshore...Likewise, through reconnaissance and attack they have deterred or driven off the concentrations of troops threatening our island positions.[126]

Moreover, when operating with the British carriers, the United States Navy often found, to their surprise, that there were still many lessons to learn and techniques and equipment to admire from the British ships and their aircraft. The British technique of close air support, for example, was especially commendable when compared to the confusion that took hold of the United States carrier forces during the Korean War as they struggled to operate within two disparate concepts and techniques of tactical air control, one developed by the Navy-Marines and the other by the Army and Air Force.[127] The resulting poor air-to-ground communications meant that the effect of US carrier air assigned to close support missions of ground forces was largely disappointing. During the Eighth Army's retreat to Pusan in South East Korea in July 1950 for instance, jammed communication channels meant aircraft from the *Valley Forge* were unable to report their positions or find their targets, often jettisoning their loads in the sea before returning to the carrier.[128]

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124. Rear Admiral A.K. Scott-Moncrieff, 'British Commonwealth Naval Operations in Korea - Part V' (July - December 1952), 9 December, 1952, ADM 116/6341.
125. Vice Admiral Joy, quoted in Cagle and Manson, *Sea War in Korea*, 289.
126. 'Air Operations in Korea', remarks by Vice Admiral R.A. Ofstie at the Press and Union League Club, San Francisco, 27 June 1952, Series III, Vice Admiral Ralph A. Ofstie Papers, OAB.
127. See 'Korean War Pacific Fleet Operations. Commander in Chief US Pacific Fleet. Interim Evaluation Report No. 2. Period 16 November 1950 to 30 April 1951', OAB.
128. Cagle and Manson, *Sea War in Korea*, 52-53.

After the fiasco at Pusan, HMS *Triumph* offered to loan the US Seventh Fleet a radio jeep and personnel trained in the close support control of aircraft to help form a complete ground control party and improve the performance of TF 77's naval aircraft. *Triumph*'s departure for the west coast later that summer, however, prevented the joint venture from taking place, and although attempts were made throughout 1951 to develop a common British-US procedure for close air support, efforts were hampered by the failure of the US services to evolve a common doctrine.[129] The close air support problem within the United States armed forces thus remained unresolved for the rest of the war.[130]

In their reports to the General Board of the Navy, the Commanders of those US carriers that operated with the British carriers often found reason to extol the merits of British methods and equipment. The Commanding Officer of USS *Bataan*, for example, was particularly impressed by the system used by the British carriers in plotting and reporting positions of surface and air contacts. 'In some respects', he wrote, 'they outshine the C[ombat] I[nformation] C[entres] of the US vessels in company' and should be used by all UN naval forces in future operations.[131] The Commanding Officer of USS *Sicily* was also impressed by the gyro-fed direction finder used in British carriers which he considered to be 'even more valuable' for homing lost aircraft in bad weather conditions than the VHF Direction Finder which the British naval aircraft lacked.[132]

It would, therefore, seem slightly unfair to conclude - as some historians have done - that the contribution of the Royal Navy to operations in Korea, particularly of the British light fleet carriers, was 'in many ways made despite, rather than because of, their

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129. See the file 'Recommended British/US Procedure for Close Air Support', ADM 1/22778.
130. Ibid., 54.
131. Ser 050 'Action report: period 8 April 1951 to 11 May 1951', from CO, USS *Bataan* to CNO, 12 June 1951, OAB.
132. Ser 060 'Action Report. Memorandum from Commanding Officer to Head, Pacific Fleet Evaluation Group' 7 February 1952, OAB.

equipment.'[133] Nonetheless, the relative success of the British and American carriers in Korea was certainly no grounds for complacency. Although some at the British Admiralty expressed the rather sanguine verdict that 'notwithstanding our material limitations, British carriers and their air groups...can give as good as any in the United States Navy, and better,'[134] or asserted that 'it does not appear that we have much to learn from [the USN carriers],'[135] the Korean War made it clear that the Royal Navy did in fact learn many lessons during the conflict, and not least of all from its experience of operating with the United States Navy whose overall performance forced others at the Admiralty to concede that 'in the main the United States Navy know more about aviation then we do.'[136]

As the last British Naval Commander in Korea, Admiral E.G.A. Clifford, summarizing the benefits of working in company with the USN, wrote in the final report of British naval operations in Korea:

> Much valuable experience continues to be gained by the Commonwealth ships in operating...with ships of the United States Navy. Frequent opportunities have been taken to exchange US and British officers and men...particularly between carriers...and this will not be without value in the future.[137]

Indeed, the Korean War both exemplified and provided for, a new level of strategic cooperation not only for Anglo-American defence relations in general, but also for British and American carrier aviation in particular. In the following chapters, some of the consequences of Anglo-American strategic cooperation in Korea for the development of carrier aviation will be examined in greater detail.

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133. Prince, 'Contribution of Royal Navy to the United Nations Forces', 114.
134. Unsigned minute on 'Report of Experience in Korean Operations July-December 1950', 23 July 1951, ADM 116/6230.
135. 'Report of Proceedings - US West Coast Carriers', 14 May 1952, ADM 116/ 6226.
136. Minute by DAOT, 10 December 1951, ADM 116/6231.
137. 'Report of Experience in Korean Operations July 1952-April 1953', 15 July 1953, ADM 116/6231.

# CHAPTER 6

# GRASPING THE NETTLE: ANGLO-AMERICAN STRATEGIC COOPERATION AND THE ROLE OF CARRIER AVIATION IN WESTERN STRATEGY, 1950-1955

## I. Anglo-American Strategic Cooperation and NATO, 1950-1952

Despite the close strategic cooperation enjoyed by the British and American navies during the Korean War, the United States government had become increasingly reluctant after the establishment of NATO in April 1949 to undertake bilateral planning discussions with Britain, preferring instead to go through established NATO channels. This change, from the informal and 'special' relationship that had begun with the establishment of the Combined Chiefs of Staff Committee during World War II and which had continued into the early postwar years, clearly troubled the British defence establishment. Contact with the US Joint Chiefs, warned the First Sea Lord was 'in danger of being seriously impaired', while the head of the British Joint Staff Mission in Washington, Sir William Morgan, conceded that 'perhaps contacts were necessarily a little less intimate because so much is now being discussed in the [NATO] Standing Group.'[1]

Indeed, although a JCS memorandum in May 1950 seemed to reaffirm the existence of a special Anglo-American defence relationship, declaring that 'the US expects the United Kingdom to be their principal partner in strategic planning', the CCS had in fact been dissolved in October 1949.[2] Following the establishment of NATO, further Anglo-

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1. COS (50) 5th Meeting, 9 January 1950, DEFE 4/28.
2. JCS 2128 'Essential Elements of US-UK Relations', 3 May 1950, File 092, sec. 1, RG 218/Geographic File/1951-53, Box 20.

American-Canadian planning conferences had been deemed 'inadvisable' and the general policy was now to deal with combined military planning through NATO as far as possible.[3] When the British COS therefore made a request, first for an Anglo-American concept of global strategy to be agreed, and then for a revision of Anglo-American emergency war plans, they were politely but firmly told by the American government on both occasions that global planning within the NATO area should include all members of the NATO Standing Group.[4]

Nonetheless, despite the establishment of the NATO alliance and the dissolution of the CCS, the Anglo-American strategic relationship did survive, albeit dressed in more formal garbs so as not to antagonize NATO's more sensitive members, particularly France. As the Korean War demonstrated, Britain and America were still major global powers, with interests that extended outside NATO's immediate area of concern. Thus, while bilateral planning within NATO was actively discouraged, American defence planners argued that there was no bar against bilateral discussions on matters of 'peculiar interest between the United States and United Kingdom.' In particular, the United States expected Britain to be their 'principal partner in strategic planning.'[5]

Even within NATO's area of interest, Anglo-American strategic cooperation continued. The 'special relationship' remained anterior to all other commitments. After all, Britain and America were the two most powerful nations within NATO and constituted the major share of the alliance's military strength. Between them they dominated NATO's command organization. In the United States, the British Commonwealth therefore remained, albeit unofficially, of greater importance, economically, strategically and politically, than 'any other existing grouping.' There

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3. Ibid.
4. JSPC 887/2 'British Request for Agreed US-UK Concept for Global Strategy', 12 September 1950 and JCS 1924/33, 16 September 1950, File 092, sec. 50, RG 218/Geographic File/1948-50, Box 68; JCS 2206 'Proposed US-UK Planning Discussions', 18 August 1951, File 337, sec. 3, RG 218/Decimal File/1948-50, Box 132.
5. JCS 2206, RG 218/Decimal File/1948-50, Box 132.

was, and should be, 'a special United States-United Kingdom relationship [with] special significance in a wide variety of fields and areas *which will exist within any larger framework in which [both countries] participate*.'[6] In Britain, military planners also continued to depend upon the United States as their main ally in defence. Even after the establishment of the WEU and NATO, it was not expected that Britain and the other European powers would be able to fight Russia 'except in alliance with the United States.' Thus, the 1950 paper on Defence Policy and Global Strategy concluded, 'full collaboration with the United States in policy and method is vital.'[7]

If the political administrations, particularly in the United States, were anxious for Anglo-American relations to be recast in a more formal mould, the defence establishments in both countries - as chapter three showed - were extremely reluctant to relinquish the intimate strategic relationship that had been built up since World War II. Although an official revival of the CCS was out of the question, an even more informal and secretive arrangement gradually developed in its place. In early 1951, the British and American COS agreed to rekindle bilateral consultation in the formulation of policy in the military and politico-military fields. Regular, 'but informal exchanges of views' were to take place on policy at the formative stage, between nominated individuals on both sides.[8] On this occasion, however, Anglo-American strategic cooperation was to be as unobtrusive as possible, 'to avoid the danger of arousing suspicions by European countries of too close a communion which they might regard as prejudicial to their own interests', and would be continued without establishing a formal machinery or agreed minutes.[9]

It was perhaps unavoidable that early NATO military plans therefore came to reflect

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6. JCS 2128, RG 218/Geographic File/1951-53, Box 20. Emphasis added.
7. DO (50) 34 'Defence Policy and Global Strategy', 1 May 1950, CAB 131/9.
8. COS (51) 65 'Anglo-American Consultation in the Formulation of Policy in the Military and Politico-Military Fields', 15 February 1951, DEFE 5/27.
9. COS (50) 206th Meeting, 14 December 1950, DEFE 4/38; COS (51) 11th Meeting, 15 January 1951, DEFE 4/39; COS (51) 31st Meeting, 14 February 1951, DEFE 4/40.

the dominance of Anglo-American strategic ideas. Indeed, as one commentator has noted, NATO plans were largely a 'subset' of Anglo-American planning.[10] For example, both the Medium Term Defence Plan, adopted by NATO in 1949, and the Short Term Defence Plan adopted by the North Atlantic Ocean Regional Planning Group in February 1950 were, to all intents and purposes, modelled on the Anglo-American Emergency War Plan, Offtackle/Galloper.[11] Early NATO plans also reflected the still largely conventional orientation of Western strategy at this time. While nuclear deterrence remained at the heart of Anglo-American defence strategy, strategy-makers in the early 1950s continued to envision a Third World War as a prolonged conflict in many stages, where the use of nuclear weapons would by no means be decisive.[12] During the early 1950s, the West's nuclear stockpile was still too limited - approximately 300 weapons in 1950 - to permit plans for their more widespread use in a war against the Soviet Union.[13] Together with the massive size of the Soviets land forces and the need to protect Europe from being overrun by those forces, conventional rearmament remained a high priority in defence policy.

NATO's force structure thus evolved to meet the requirements of a long war. The maritime component of the MTP, for example, contained plans for large conventional naval forces - including twelve fleet carriers and eighteen light fleet carriers - designed to protect the Atlantic convoys against submarine, air and surface attack and defend the sea and air lines of communication between North America and Europe.[14] Although plans were formulated for more 'offensive action against enemy armed forces and shipping, their bases and port facilities, including attack-at-source, amphibious and airborne

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10. Maloney, *Securing Command of the Seas*, 96.
11. Ibid., 98.
12. See Rosenberg, 'American Naval Strategy in the Era of the Third World War', 243.
13. Rosenberg, 'Origins of Overkill', 16; ibid., 'Reality and Responsibility', 39.
14. See JP (50) 172 (Final) 'Revised Medium Term Force Requirements and Recommended National Contributions', 12 October 1951, DEFE 6/18. Britain's naval contribution included one fleet carrier, four light fleet carriers and 271 aircraft.

operations and offensive mining', the assessment of the likely nature of the Soviet threat remained largely traditional, even if somewhat disputed.[15] British intelligence reports, for example, identified the submarine fleet as the strongest arm of the Soviet navy and estimated the number of Soviet submarines in 1950 at 300. They also calculated that the Soviets would be capable of operating more than twenty-five high speed Hydrogen Peroxide (HTP) submarines by 1954.[16] The USN, however, rightly rejected the British figures as too high, arguing that the Soviet submarine threat was less serious than anticipated. According to the 'Study of Undersea Warfare' in April 1950, the overall figure was nearer to 225 submarines, while the number of high speed submarines currently available was less than four.[17] Other reports, however, considered the most serious threat to allied sea communications was Soviet airpower,[18] while yet others argued that it was in fact the mine that posed the greatest danger of all.[19]

Such conflicting views on the nature and extent of the Soviet threat were symptomatic of the more fundamental debate that beleaguered Anglo-American naval planners in NATO during the early 1950s - what was to be the proper role of seapower in war? Although trade protection had been identified early on as an essential maritime task to be fulfilled on the outbreak of war, NATO's overt transformation from a political to a military alliance following the Korean War and the subsequent adoption in September 1950 of a more 'forward' strategy to defend Europe as far to the east as possible, raised in stark terms the issue of how best sea power could be used to influence the course of war on land. While Britain's experiences in World War II and

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15. Quoted in Joel J. Sokolsky, *Seapower in the Nuclear Age. The United States Navy and NATO 1949-80* (London: Routledge, 1991), 13.
16. JIC (50) 6 'Basic Review of Foreign Policy and Strategy of the Soviet Union', 9 October 1950, is discussed in COS (50) 179th Meeting, 13 November 1950, DEFE 4/37.
17. Palmer, *Origins of the Maritime Strategy*, 69; Sokolsky, *Seapower in the Nuclear Age*, 10.
18. See, for example, the 1950 report of the Air Warfare Division of the Deputy CNO (Air) described in Sokolsky, ibid., 11.
19. Sir Henry Tizard, the Chairman of the Defence Research Policy Committee of the British COS, argued in the summer of 1950 that the mine was a more serious threat to sea communications than the submarine. See COS (50) 97th Meeting, 28 June 1950, DEFE 4/32.

her lack of large carrier fleet inhibited naval planners in considering anything other than primarily defensive and traditional sea control duties, such as the defence of sea communications and convoy operations, the United States Navy, with its infinitely greater resources, preferred to emphasize more offensive, carrier-based tasks, such as power projection and attack-at-source, including the use of nuclear weapons.[20]

If, as the naval historian Joel Sokolsky argues, 'the crucial element in the evolution of NATO's naval posture was not so much the acceptance of seapower as it was the recognition of the continuing importance of landpower', nowhere was this strategic reality more clearly demonstrated and the issue more thoroughly debated than in the evolution of the Supreme Allied Commander, Europe's (SACEUR) concept for the defence of Western Europe.[21]

As SACEUR, General Dwight D. Eisenhower was responsible for drawing up plans for the defence of Western Europe. In early 1951, he outlined his new Emergency Defence Plan to a rather dubious British Chiefs of Staff Committee in London.[22] The whole area was to be divided into three: the centre, comprising of the land mass of Europe where the main battle would be fought; and the north and south flanks on either side which could be made into so-called 'hedgehogs', or strong points of defence. Crucial to this flanking strategy was the support of naval and air task forces, particularly carrier task forces, whose contribution to the land battle Eisenhower rated very highly. He was convinced not only that Britain and the United States should make the greatest possible use of their superiority in sea power, especially sea-borne air power, but also that in the early stages of the war, carrier forces, due to their flexibility, might provide the only air support available. Behind the 'hedgehogs' in the North Sea and the

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20. Grove & Till, 'Anglo-American Maritime Strategy', provides a good summary of this debate, 281-289.
21. Sokolsky, *Seapower in the Nuclear Age*, 14.
22. COS (51) 11th Meeting, 15 January 1951, DEFE 4/39; JP (51) 29 (Final) 'Defence of the Flanks of the Western European Campaign', 7 March 1951, DEFE 6/16. The following three paragraphs are based on these sources unless otherwise stated.

Mediterranean, therefore, allied carrier strength would be amassed, reinforcing particular points, dividing the enemy's air effort and attacking the Soviets if they moved against the centre.

The Chiefs initial response was sceptical. Fraser, doubted in particular the effectiveness of naval air power against the Soviet Union's numerically superior shore-based aircraft and cautioned that the carriers would also face a considerable submarine threat in in-shore waters. He argued that carrier task forces in a European total war would not be able to operate with impunity as they had in the Korean War, where there had been no appreciable air, surface or underwater opposition.[23]

A report by the Joint Planning Staff examining SACEUR's concept, particularly the problems of operating carriers in the North Sea and the Mediterranean and the role of carrier task forces in supporting the flanks, was also cautious in its judgement. Subject to the proviso that allied naval and air power gained and retained command of the sea areas of the north and south flanks and the lines of communication in the Atlantic and Mediterranean, the report reached three main conclusions.

First, as far as the effectiveness of carrier aircraft was concerned, strong air support to the flanks of Western Europe could be provided for limited periods in certain areas. However, with a large percentage of a carrier's own aircraft needed to defend itself from attack and the difficulty of maintaining sustained operations, it may be more economical and efficient to use shore-based aircraft if available.

Second, support from carrier task forces for the flanks would allow temporary local air parity and possibly superiority to be achieved, although it could not be relied upon to do so for extended periods. It was thus considered essential for each 'hedgehog' to

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23. COS (51) 48th Meeting, 14 March 1951, DEFE 4/41. Although not reported in official records thus far made publicly available, contemporary reports indicate that British naval forces did make contact with and sink a Soviet submarine in the Yellow Sea in December 1951. According to eyewitness accounts described in Prince, *The Royal Navy and the Korean War*, contact with a Soviet submarine was made by HMS *Cockade* while escorting the US escort carrier *Rendova* in the Yellow Sea. Debris and flotsam was apparently recovered but until official records are available to verify these accounts, the sinking of a Soviet submarine by British naval forces remains speculative. 106-108.

have its own air field from which land-based aircraft or disembarked carrier aircraft could operate.

Finally, and most significantly, the implications of SACEUR's concept on other theatres was such that:

> it would be wrong to allocate all available carrier forces permanently to SACEUR as long as some carriers are needed to establish and maintain maritime control in the Atlantic and Mediterranean. It must be remembered that the defence of sea communications in the Atlantic is vital to the defence of Western Europe. The safe and timely arrival of convoys would have a more permanent effect on the land battle than the temporary application of sea and air power to a selected area.

This last point was perhaps a rather belated rejoinder to President Truman's recent decision to permanently assign the US Sixth Fleet in the Mediterranean to SACEUR's command, thus changing the fleet's primary mission from defending maritime communications to providing air support for ground forces on the southern flank.[24] The US Navy, however, had been actively promoting the adoption of a more forward strategy in Europe based on offensive carrier operations since 1946-47. The naval component of War Plan Pincher, for example, had called for forward, offensive operations against Soviet ports, bases and naval facilities and to retard Soviet advances into Norway, Spain, Italy, Greece and Turkey.[25] Thus, SACEUR's concept generally conformed with the USN's own maritime strategy and they were swift to support the plan despite the misgivings of the British.

Contrary to the JPS conclusions, US naval planners argued that carrier task forces could be relied upon to undertake prolonged operations in support of the flanks of Western Europe and that sustained air superiority was possible in some areas using US

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24. Sokolsky, *Seapower in the Nuclear Age*, 24.
25. See Chapter 3, 'Anglo-American Strategic Cooperation 1945-50: the Transition from a National to a Western Strategy and the Role of Carrier Aviation'.

Marine Air Wings in addition to carrier forces.[26] Since the 'vast majority' of Soviet air forces were still piston engine, low-performance aircraft, or the shorter-legged MIG 15, the USN's F4U Corsairs and F9F Panthers would be able to handle any attempted attack on the carriers, as they had done during the Korean War, while the most effective way to deal with the enemy air threat would be to destroy it on the ground. The Soviet submarine threat could also be countered by bombing the bases, mining the exits to the sea and providing a heavy ASP for each task group. The cumulative effect of operations such as these on both flanks 'will serve to divide the enemy's air effort and when considered in conjunction with enemy requirements to counter our tactical air in the middle and strategic air over the USSR...the threat to either force should not be too great to handle.' More significantly, 'against such threats the enemy will be in no position to expend any great effort to interdict our SLOC in the Atlantic or in the Mediterranean.'

Significantly, the US planners made a point of denouncing the view that it was General Eisenhower's plan to restrict carrier task forces to providing only fighter defence and close air support of ground forces at the expense of offensive strikes by carriers to gain and maintain control of the seas, including attack-at-source. Not only was this a concern of the British naval staff, but it was also the cause of a certain amount of unease within the USN itself. A paper by the Strategic Plans Division in August 1951, for example, expressed disquiet at SACEUR's apparent assumption that the primary role of the carriers was direct support of the land battle.[27] The primary mission of the USN was to gain and maintain control of the seas and as the principal means for carrying out that role, the carrier's priority under SACEUR should be to undertake conventional naval missions *before* the role of direct support and augmentation of land and air forces. The fear was that if this secondary role was placed before the navy's

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26. 'Comments on Report by Joint Planning Staff on 'Defense of the Flanks of the Western European Campaign', 27 March 1951, Folder EF, SPD, Box 266. A copy can also be found in ADM 1/24421. The remainder of this paragraph is based on this source.
27. 'Employment of Aircraft Carriers by SACEUR', 29 August 1951, Folder A16-1, SPD, Box 264.

primary mission, it would admit that the control of the seas could be maintained without the use of carriers or that the war could be prosecuted without control of the seas. It might also lead to the assumption that carriers could be made available immediately for ground support when called for.

Pre-empting such concerns, the US naval planners therefore denied that SACEUR envisaged such a restrictive plan. In fact, SACEUR's concept did recognize that to provide flank support:

> we must first win the air battle on the flanks by striking at enemy base facilities and destroying his aircraft on the ground as well as in the air. We must destroy submarines by mining and air attacks on submarine bases using all weapons including atomic weapons. All these attacks support ground forces by forcing a Soviet reaction and destroying Soviet arms. *The attacks are a prerequisite to gaining and retaining control over the Atlantic and Mediterranean lines of communication.*[28]

Nonetheless, both British and American concern at the level of support SACEUR expected from carrier task forces on the flanks of Western Europe eventually led to a gradual shift in emphasis in Eisenhower's plans. Carrier aircraft would now be primarily responsible for providing defence in depth and land-based aircraft for ground support.[29]

The whole problem of carrier support received further clarification following the commissioning of the Supreme Allied Commander, Atlantic (SACLANT) in January 1952.[30] With the exception of the US Sixth Fleet in the Mediterranean, SACLANT's Emergency Defence Plan 1-52 offers the greatest insight into the role allied naval forces

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28. 'Comments on Report by Joint Planning Staff on 'Defense of the Flanks of the Western European Campaign', 27 March 1951, Folder EF, SPD, Box 266. Emphasis added.
29. See for example the British COS meeting with Admiral William M. Fechteler in COS (51) 177th Meeting, 5 November 1951, DEFE 4/48.
30. The first SACLANT was Admiral Lynde D. McCormick, USN, who was also Commander-in-Chief, Atlantic (US)(CINCLANT).

were expected to play in war during this period.[31]

According to the plan, SACLANT would be responsible for fulfilling three main tasks. First, sea communications in the North Atlantic would have to be secured, including the protection of convoys. Unless this was done, allied forces in Western Europe would have to withdraw or face destruction. Enemy submarines, aircraft and surface vessels and the land bases and facilities supporting them, would therefore have to be destroyed or neutralized. Second, SACLANT would support allied ground forces in Western Europe, both directly and indirectly, by providing naval air and gunfire support and the capability for reinforcement or evacuation. Finally, denying the enemy access to the sea, particularly in the Baltic and around Norway, would help prevent SACEUR from being outflanked from the north and secure the United Kingdom base area. Conversely, it would open up the way for attacks against the enemy's flanks in support of SACEUR. Again, neutralization of the bases from which the enemy forces operate would be essential.

SACLANT's principal offensive force for fulfilling these tasks, particularly attack-at-source, was the newly formed Atlantic Striking Fleet. The Striking Fleet first came into being during the major NATO exercise 'Mainbrace' in September 1952.[32] It included both British and American carriers, as well as battleships, cruisers and destroyers, and was capable of deploying both conventional and atomic weapons. Although the USAF objected to the use of the Striking Fleet for strategic bombing missions in support of SACEUR, in January 1952 the JCS had authorized SACEUR to begin planning for the use of tactical atomic bombs in the defence of Western Europe and stated that naval, as well as air force, units could be considered for the task.[33] A

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31. SACLANT's EDP 1-52 is still classified but Sokolsky, *Seapower in the Nuclear Age*, contains a useful discussion of its main features, 23. See also 'JCS 2073/465 & JCS 2073/473 (Emergency Defense Plan (SACLANT EDP 1-52) of the Supreme Allied Commander Atlantic', 28 November 1952, Folder A4-3(1), SPD, Box 273. The next paragraph is based on these sources.
32. For more on Exercise Mainbrace, see 'Press Announcement for Mainbrace', 17 June 1952, PREM 11/48; Grove, *Vanguard to Trident*, 166-167.
33. Rosenberg, 'Origins of Overkill', 29-30.

report in February 1952 by the Weapons System Evaluation Group on the offensive and defensive capabilities of carriers also concluded that carrier task forces were capable of undertaking offensive operations against Soviet bases and that atomic strike was not beyond their capabilities.[34]

## II. Anglo-American Strategic Reorientation, 1952-54

The pledge of two Royal Navy fleet carriers to the Atlantic Striking Fleet, with its emphasis on attack-at-source and forward offensive operations, did not necessarily mean that the Royal Navy had completely abandoned its commitment to traditional sea control duties. Indeed, according to one contemporary commentator, 'the position of Great Britain would not appear, in fact, to be very much modified in respect of maritime strategy by the circumstances of the [North Atlantic] Treaty', and certainly, convoy protection and the defence of maritime communications, both within NATO's area of interest and outside, remained as important as ever.[35]

Nonetheless, the Royal Navy's commitment of naval forces to the Striking Fleet - and thus its de facto acceptance of the American plan for the defence of Western Europe - did indicate that British attitudes towards the role of seapower in war were gradually changing. A number of factors help to explain this change. In the first place, NATO naval planning had encouraged a change in the emphasis on the defence of shipping as the chief *raison d'être* for Britain's carrier forces.[36] While British naval planners had always favoured a more offensive maritime strategy, the lack of suitable front line strike aircraft or modern carriers from which to operate them, meant that planning could only

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34. JCS 2131/1 'Evaluation of the Offensive and Defensive Capabilities of Fast Carrier Task Forces in 1951', 28 February 1952, File 045.92, sec. 2, RG 218/Decimal File/1951-53, Box 25.
35. 'Volage', 'The Strategic Role of Naval Surface and Air Forces', *Brassey's Annual*, 1951, 173.
36. Grove, *Vanguard to Trident*, 97.

advance on the basis of what the Royal Navy could do, in other words, escort convoys.

By 1952, however, the navy's strategic outlook was changing. The new fleet carrier, HMS *Eagle*, had finally been completed in October 1951, beginning service in March 1952. *Eagle* was capable of operating all modern types of aircraft that were expected to enter service over the next few years, including the Wyvern strike aircraft and the Sea Hawk jet fighter. Together with the fleet carriers, HMS *Ark Royal*, which was due to complete in 1954, and HMS *Victorious*, undergoing complete modernization, the Royal Navy in 1952 could look forward to a reinvigorated carrier capability. A study completed by the Director of Plans and the Director of Naval Air Warfare in November 1951, for example, estimated that after 1954, a British Fast Carrier Task Force of two *Eagle* class and two modernised *Victorious* or *Hermes* light fleet class, would be able to provide significant flank support and attack-at-source and be capable of up to 240 offensive sorties per day.[37]

Secondly, the prospect of playing a more offensive role in naval operations was made all the more attractive to the Royal Navy by the expectation that small tactical nuclear weapons would soon be available for use by navies. Between 1949 and 1952, the nuclear stockpile in the United States had expanded significantly, reaching approximately 1,000 by 1953. Together with improvements in the supply of uranium after 1952 and a reduction in the overall size of nuclear bombs, it was anticipated that nuclear weapons could eventually be used tactically, against specific targets, both on land and at sea.[38] In the autumn of 1951, for example, Project VISTA in the United States had studied the possibilities of developing tactical nuclear weapons for use against enemy troops.[39] For both the British and American navies, this promised to be a significant innovation; if tactical weapons could be adapted for use at sea, it would

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37. 'Support of Land Forces by a British Fast Carrier Task Force', 28 November 1951, ADM 1/22672.
38. Rosenberg, 'Origins of Overkill', 21-23.
39. Clark & Wheeler, *British Origins of Nuclear Strategy*, 147. The first low-yield tactical atomic bomb was exploded in the Nevada desert in April 1952, ibid., 195.

enable them not only to claim a role in the early stages of a war, but also ensure that the attack of enemy mine and submarine threats at source were not neglected through lack of assistance from the US Air Force Strategic Air Command (SAC).[40]

For the Royal Navy, the development of tactical nuclear weapons had the added attraction of offering the navy the means to counter the increase in Soviet naval construction at this time, particularly the emergence in 1951 of the new 16,000 ton *Sverdlov* cruisers. Although the production of anti-ship strike weapons had been increased in response and the proportion of strike aircraft in the front-line expanded from 10 per cent to 17.5 percent, it was considered unlikely that any of the Royal Navy's existing or near-future aircraft would be able to disable the *Sverdlov*'s with either rockets or bombs.[41] In June 1952, therefore, a requirement was issued for the NA 39 Buccaneer, a long-range, low-level strike aircraft, able to carry a small tactical nuclear weapon and capable of attacking land targets as well as *Sverdlov*'s (see appendix). Anxious to avoid conflict with the RAF, however, the attack-at-source capability of the NA 39 was officially played down by the Admiralty as a 'bonus' capability, and not the aircrafts primary *raison d'être*.[42]

Finally, as the previous chapter made clear, the Royal Navy's strategic thinking at this time was also influenced by the impact of the Korean War and the subsequent increase in defence funds. Many at the Admiralty shared the hopes of Rear Admiral R.A.B. Edwards, the Assistant Chief of Naval Staff, that 'with the ...opening of the purse strings, the concept of an offensive carrier task force might well be revived.'[43] Although a strong mindset persisted that while 'we must be offensive ...we have to defend ourselves first,'[44] the Korean War did demonstrate to the Admiralty that the

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40. See COS (52) 133rd Meeting, 19 September 1952, DEFE 4/56.
41. 'Progress of Naval Aviation', May 1952, ADM 1/23203; Minute by D of P, DAW & DAOT, 29 August 1951, ADM 1/25076.
42. See for example the note by the Fifth Sea Lord, 2 September 1954, ADM 205/98.
43. Letter from ACNS to FSL, 4 August 1950, ADM 205/74.
44. Note from FSL secretary to ACNS secretary, 10 August 1950, ADM 205/74.

scope of naval air work was increasing, to include anti-ship strike, AEW and ground support of the army. Naval aviation was becoming more offensive in nature and could be used to attack targets against which the use of land-based aircraft were not appropriate or possible.

The Royal Navy's change in attitude in favour of a more offensive, and ultimately nuclear orientated, naval doctrine, coincided with and was undoubtedly influenced by, a more general strategic reorientation that was taking place within the British and American defence establishments as a whole after 1952. Between 1952 and 1954, British, American and allied defence policy witnessed a marked shift away from building up conventional war-fighting capabilities and towards a much more overt reliance on nuclear weapons as the primary means of deterrence. Efforts to match the Soviet Union in terms of conventional forces were proving financially impossible and in the attempt to reduce expenditure and find an affordable defence posture, nuclear weapons eventually came to be seen as a more viable and cheaper alternative. Where war and the establishment of an international alliance had failed, financial pressures were to succeed once more in forcing a reassessment of Western strategy.

***Great Britain***

In Britain, where the socio-economic effects of rearmament following the outbreak of the Korean War were felt much more keenly, the process of strategic reorientation occurred much sooner than in the United States. With industrial production, exports and the gold and dollar reserves down and imports, taxes and the balance of payments deficit up, the new Conservative Government elected in October 1951 immediately initiated a policy of fiscal retrenchment with the rearmament programme as its chief target.[45] In

45. For more on Britain's economic situation in 1950-51, see Alan Sked and Chris Cook, *Post-War Britain. A Political History* (London: Penguin Books (second edition), 1984), 96-97.

January 1952, despite £121 million in aid from the United States to prevent a reduction in defence spending, expenditure for 1952 was cut and the rearmament programme spread over four, rather than three, years. The Royal Navy's estimates were reduced, from £402 million to £358 million, and the Admiralty's forecasts for the future size of front line aircraft strength in 1956 were revised downwards, from 300 to 270 aircraft.[46]

The pressures on the British economy, however, did not begin or end solely with the Korean War rearmament effort. The difficulty of meeting Britain's agreed contribution to NATO's Medium Term Defence Plan requirements was also imposing a serious strain on the economy. By 1951, a gap had developed between the MTP's overall requirements and the total national contributions needed to implement the plan. In an effort to close the gap, the Military Representatives Committee of NATO recommended a revision of force requirements and an increase in national contributions.[47] Britain was asked to provide one extra fleet carrier and two extra light fleet carriers in addition to the two fleets and four light fleets that had already been agreed. With the economy straining under the burden of the £4.7 billion rearmament programme initiated in January 1951, however, the Chiefs of Staff remonstrated that the increase was 'an excessively large allocation of additional naval forces to the United Kingdom' and did not take any account of Britain's extra-European commitments. The proposals were therefore rejected outright and the COS even reduced the recommended allocation of light fleet carriers from four to two.

The difficulty of meeting Britain's NATO commitments was made much greater when the Long Term Defence Plan was adopted by the Standing Group in Lisbon in February 1952. The Lisbon force goals committed the allies to huge conventional

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46. Board Minute 4530, 10 January 1952, ADM 167/140; Note by Controller on 'Realistic Forecast of Front Line Aircraft Strength', 31 March 1952, ADM 205/85.
47. JP (51) 150 (Final) 'Closing the Gap', 3 September 1951, DEFE 6/18; DO (51) 105 'Closing the Gap', 14 September 1951, CAB 131/11; COS (51) 156th Meeting, 5 October 1951, DEFE 4/47; JP (51) 172 (Final) 'Revised Medium Term Force Requirements and Recommended National Contributions (SG 20/37)', 12 October 1951, DEFE 6/18.

rearmament, with a total target of ninety-six divisions and 9,000 aircraft by 1954. Britain's contribution included eighteen divisions, two fleet carriers and four light fleet carriers.[48]

Although the Conservative Government approved the Lisbon figures, British strategic opinion, in both military and political circles, was beginning to change. A report by the Chiefs of Staff in November 1951 on the likelihood of war with the Soviet Union before 1954, for example, had concluded that the Soviets would not start a war while the West maintained its superiority in nuclear weapons.[49] Thus, as Clark and Wheeler point out, the COS now rejected the assessment of an imminent Soviet attack on which both current American and NATO military planning were premised.[50] Indeed, a review of current defence policy and global strategy by the Joint Planners in February 1952 had urged that the priorities of fighting the cold war in the long term should now receive precedence over the requirements of fighting a 'hot' war in the short term.[51]

The new government, headed by Winston Churchill, also entertained a much less marked aversion to nuclear weapons than their predecessors. In January 1952, Churchill had been given a secret briefing by the Strategic Air Command in Washington, in which he was said to have been 'profoundly impressed' by atomic air power.[52] He left Washington convinced that not enough emphasis was being placed on the value of nuclear weapons in Western defence plans.[53]

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48. C.J. Bartlett, *The Long Retreat. A Short History of British Defence Policy, 1945-70* (London: Macmillan, 1972), 80.
49. Cited in D (53) 3 'Likelihood of General War with Soviet Union up to the End of 1955', 28 January 1953, CAB 131/13.
50. Clark & Wheeler, *British Origins of Nuclear Strategy*, 147. In particular, British planners considered that the American document NSC 68, which called for a massive military budget increase to build up both conventional and atomic forces to meet Soviet aggression, was alarmist and misconceived. See Chapter 5.
51. JP (52) 17 (Final) 'Review of Defence Policy and Global Strategy', 7 February 1952, DEFE 6/20.
52. Rosecrance, *Defense of the Realm*, 158.
53. John Baylis and Alan MacMillan, 'The British Global Strategy Paper of 1952', *Journal of Strategic Studies*, vol. 16, no. 2 (June 1993), 200.

Such thinking, combined with the need to reduce still further Britain's defence expenditure, encouraged the Government to initiate a reassessment of British strategic policy. The result was the 'Defence Policy and Global Strategy' (GSP) paper of June 1952, which based British defence planning squarely on nuclear deterrence and atomic air power.[54] The central premise of the paper was that the West should prepare for a long drawn out period of cold war, rather than war in the short term. Since maintaining large conventional forces was too costly, the primary deterrent against aggression should be the West's superiority in atomic weapons, the existence of which had not so far affected the size of the forces called for by NATO. The development of United States atomic air power, however, was 'not only an effective deterrent but a war-winning factor of the first order.' The main role for Britain's future nuclear bombing force would be to influence American policy and planning of the allied offensive; in particular, to ensure that targets 'which are not of such direct strategic interest to the United States' were included.

Atomic air power, however, would not be able to deter or provide an appropriate response to the more limited, Korean-type, conflicts that could be expected to occur during the cold war. Conventional forces, especially the army and navy, would therefore also have a role in deterring and dealing with such minor wars.

Despite the emphasis of the Global Strategy paper on meeting the challenges of the cold war, preparations for a hot war were not neglected. There was disagreement between the services, however, on whether or not this included the need to plan for a long or short war and on the role naval forces could be expected to play. The opening phase of a future war was expected to be short and of 'unparalleled intensity.' The Soviet Union would attempt to overrun Western Europe, neutralize the United Kingdom base with atomic bombs and undertake an intense mining and submarine campaign against British sea communications. The United States would respond by unleashing an

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54. D (52) 26 'Defence Policy and Global Strategy', 17 June 1952, CAB 131/12. Unless otherwise stated, the next four paragraphs are based on this document.

all-out atomic attack against Russia's war-making capacity while the Allied armies would attempt to delay the Soviet advance in Europe and the Middle East.

Priority in this phase was given to the nuclear air forces, although keeping open the 'vital sea lanes and ports' would also be essential if Britain was to continue fighting. This was a concession to the conclusions of a paper by Sir Henry Tizard on the importance of sea communications in a war, debated by the Chiefs of Staff in February 1952.[55] Tizard argued that, contrary to popular opinion, the development of air power had not reduced the importance of sea communications. In his opinion, Britain's sea communications were 'now more important than ever. An all-out attack by the Soviet Union on our sea communications was of equal danger to us as an attack against this country by atom bombs.'

However. beyond the defence of sea communications, little mention was made in the Global Strategy paper of the role the navy would play in the initial nuclear phase of a war. Despite the Royal Navy's growing interest in playing a role in a future atomic war, its forces at this time were still conventional and Churchill had made it clear before the review started that he wanted the role of the navy in particular to be scrutinized. As a convert to atomic air power, he did not believe it necessary to maintain such large naval forces, especially when there was no enemy at sea to prepare against.[56]

Anxious to maintain a strategic rationale for keeping its large surface forces, the Admiralty therefore promoted the concept of a long war, in which the most intensive theatre would be at sea. The navy's were supported by the report of the Air Defence Committee in March 1952, which had argued that an atomic war would be protracted and that maintaining sea communications was vital to Britain's survival.[57] The new First Sea Lord, Admiral Sir Rhoderick McGrigor, thus secured COS agreement to the

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55. COS (51) 29th Meeting, 19 February 1952, DEFE 4/52. An earlier version of Tizard's paper can be found as DRPS/P (51) 30 'Sea Communications in War', 8 October 1951, DEFE 7/701.
56. See the minute from Churchill to the Minister of Defence, Alexander, 30 May 1952, PREM 11/49.
57. AD (52) 5th Meeting, 20 March 1952, DEFE 8/27.

concept of a long war. The initial opening phase of a future war:

> would be followed, if a decision had not been reached in the first period, by an indefinite period of 'broken-backed' hostilities during which both sides would seek to recuperate from the wounds they had sustained and to recover strength for a further intensive effort.

Although few resources would be allocated to prepare for the 'broken-backed' phase - the chief priority being to survive the nuclear phase - the other two services still disagreed with the Admiralty on its concept of a long war. But, as the Chief of the Air Staff, Sir John Slessor, explained some year later, 'we had to put it in for the sake of little Roddy McGrigor because otherwise if there was no broken-backed war, then there was no case for keeping a large Navy.'[58]

There has been some disagreement between historians over how significant and original the 1952 Global Strategy paper was in the history of British defence planning. It has been variously described, for example, as 'a classic among military documents,'[59] 'one of the most significant documents in the history of postwar British defence policy,'[60] and 'an important innovation in military thought.'[61] However, others have been more guarded in their assessment of the paper. Clark and Wheeler, for example, having studied the origins of British nuclear strategy, argue that 'the [GSP] embodied considerable elements of continuity in British strategic nuclear ideas [and] was framed within a continuing tradition of strategic theorising.'[62] Baylis and Macmillan also assert that 'if the [GSP] is to be measured by the extent to which it embodied continuity or

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58. Anthony Seldon, *Churchill's Indian Summer: The Conservative Government 1951-1955* (London: Hodder and Stoughton, 1981), 335.
59. Andrew J. Pierre, *Nuclear Politics. The British Experience with an Independent Strategic Force 1939-1970* (London: Oxford University Press, 1972), 87.
60. Grove, *Vanguard to Trident*, 83.
61. Rosecrance, *Defense of the Realm*, 171.
62. Clark and Wheeler, *British Origins of Nuclear Strategy*, 170.

change, then its significance needs to be downgraded somewhat.'[63]

Such disputes are mere quibbles, for as most historians would finally agree, the Global Strategy paper was a document of the highest import. If one considers the paper on its merits and fully cognizant of the time in which it was written, then its significance, irrespective of its strategic heritage, is obvious. Not only was it the first fully developed critique of NATO strategy thus far but it was also an indictment of the very doctrine on which that strategy of conventional defence hinged - the American national security policy document, NSC 68. Moreover, the notion of deterrence, which had been an element of British defence policy since the end of World War II, received its most thorough and forceful expression to date in the GSP. The commitment to nuclear weapons - their manufacture, delivery *and* the determination to use them - was also much stronger than in the past. If there was a precise moment at which British defence policy shifted from a conventional to a nuclear orientation, then it was with the 1952 Defence Policy and Global Strategy paper.

The GSP, however, fell short in its primary aim to materially reduce the defence budget. The COS had warned that the reductions recommended in the paper 'can be undertaken only by incurring real and serious risks. These risks are only justifiable in the face of the threat of economic disaster.'[64] Nonetheless, the figure of £6,900 million in the four years 1952/56, including £500 million per annum on metal, shocked the Treasury. Lord Cherwell, the Paymaster-General, complained that instead of easing the defence burden, costs were to jump by £300-400 million, a sum 'equal to three-quarters of the cost of the whole housing programme or the total cost of our imports of meat, bacon, ham, butter, eggs and tobacco put together.'[65]

In October 1952, the COS-appointed Powell Committee therefore revised the Global Strategy paper costs downwards, recommending a reduction from £1,759 million to

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63. Baylis and Macmillan, 'British Global Strategy Paper', 220.
64. D (52) 26, CAB 131/12.
65. Minute from Lord Cherwell to Churchill, 18 July 1952, PREM 11/49.

£1,645 million for 1953-54.[66] Under pressure from the Chancellor to come down to £1,570 million, the Chiefs defended their position, claiming that NATO's cohesion and America's commitment to defend Western Europe might be damaged by further cuts. The defence budget was finally settled by Churchill in November, who authorised a limit of £1,610 million, but not before a 'Radical Review' of defence expenditure was also initiated.[67]

The Radical Review process was to undergo many rounds and last several years. At its crux was the need to settle the dilemma that the Global Strategy Paper had identified but ultimately failed to resolve: how to avoid superimposing 'a new atomic strategy upon the old traditional strategy.'[68] While the GSP had recognised that a 'trade-off between nuclear and conventional forces' was imperative if defence budgets were to be reduced,[69] ambiguity over whether a future war would be long or short frustrated efforts to achieve a new equilibrium between conventional and nuclear forces. Until this dilemma was resolved, expenditure on defence would remain 'beyond the bounds of practical politics.'[70]

For the Royal Navy, the whole Radical Review process was a demanding time. The focus of attention - and criticism - fell largely on the role of carrier aviation in a nuclear-orientated defence policy. Despite the best efforts of Tizard and the Admiralty to prove otherwise, the view persisted that in the age of atomic air power, there was no role for large naval forces, in either a long- or short-war scenario. Moreover, the navy's efforts to build up a more offensive carrier force were seen by many to be an unnecessary duplication of both the United States Navy and RAF capabilities. As Philip Newell, the Head of the Military Branch at the Admiralty, bemoaned in 1954, 'what has the Radical

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66. D (52) 45 'Defence Programme', 31 October 1952, CAB 131/12.
67. Grove, *Vanguard to Trident*, 90.
68. D (52) 26, CAB 131/12.
69. Clark & Wheeler, *British Origins of Nuclear Strategy*, 173.
70. Minute from Lord Cherwell to PM, 18 July 1952, PREM 11/49.

Review been but a discussion of the 'future strategic role of the FAA'?'[71]

In the early stages of the Radical Review, the Admiralty was able to deal with such criticism with finesse. In the autumn of 1952, for example, a second Maritime Air Defence Committee (MADC) had been established in the wake of the GSP to investigate whether some economy might be achieved from further integration between naval aviation and the RAF.[72] In particular, the maritime tasks which could best be achieved by air power were to be examined. The RAF had become increasingly critical of the Admiralty's emphasis on the strike role in naval operations, arguing that ASW had been neglected as a result. The MADC, however, supported the Admiralty's claim that its carriers were an essential part of the new NATO Strike Fleet, possibly even using nuclear weapons to strike at long-range.[73] In February 1953, the RN and RAF seemed to reach a compromise on the matter, issuing a statement to the effect that naval aircraft could be 'employed in the attack of targets and the support of land forces in areas where shore based aircraft cannot be deployed economically or based within range.'[74]

The Admiralty's 'broken-backed' concept also received endorsement in the first Radical Review report in January 1953. The report supported their view that a future war was not guaranteed to be short and that 'the first aim of the rearmament programme should be to ensure national survival in the initial attack and to safeguard sea communications in the succeeding phase.'[75]

Unfortunately for the navy, however, the report showed little saving in defence expenditure, recommending a total of £1,830 million for 1955-56. This was a red rag to the anti-navy Minister of Supply, Duncan Sandys, who believed that the Royal Navy's carriers, and the costly aircraft that operated from them, should be reduced because 'it

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71. Note by Philip Newell to FSL, 3 November 1954, ADM 205/99.
72. JP (52) 75 (Final) 'Action Resulting from Defence Policy and Global Strategy', 17 July 1952, DEFE 6/21.
73. The minutes of the MADC can be found in DEFE 8/40.
74. COS (52) 75, DEFE 5/44, quoted in Grove, *Vanguard to Trident*, 99.
75. Ibid., 91.

was rational for the USN to protect convoys to the point where they came under protection from British shore-based aircraft [and] in view of the strength of US naval forces and the improbability of naval engagements with Soviet surface forces.'[76] In June 1953, Sandys therefore proposed that only those forces which contributed to Britain's peacetime role and which were relevant to the first six weeks of war should be maintained. Moreover, a reduction of £308 million was to be made in the defence expenditure planned for 1955-56 and the services were to divide their forces into three categories, in descending order of priority. In Category I were the minimum forces for essential Commonwealth commitments in peace. Category II were those forces essential for survival in the first six weeks of war. Lastly, Category III were forces for the period of broken-backed war.[77]

The so-called 'June Directive', actually issued by the Minister of Defence, was the most explicit rejection yet of the Admiralty's long-war concept. Equally significant, however, was its dismissal of the navy's role in the opening stages of a war. A rider had been added to the directive that 'carrier-borne aircraft will play a less important strategic role in future in view of the increasing range of shore-based aircraft and the development of guided missiles.'[78]

The Admiralty's response to the directive was swift and forthright. Defending both the vital role of the Royal Navy in the first six weeks of war and the need to prepare for the broken-backed phase, the First Sea Lord argued in the COS committee that 'it would be essential to keep open and operate the sea communications to the United Kingdom from the very start of the war.' However, to calculate only for the survival of Britain during first six weeks of war was 'quite unrealistic' and consideration should therefore be given to the means 'for fighting the war throughout its duration.'[79] In classifying the

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76. 'Review of Defence Expenditure', 28 June 1955, ADM 205/164.
77. Ibid.; Grove, *Vanguard to Trident*, 91.
78. 'Review of Defence Expenditure', ADM 205/164.
79. COS (53) 78th & 80th Meetings, 24 & 26 June 1953, DEFE 4/63.

navy's forces, the Admiralty thus argued that one light fleet carrier would be needed for Category I, two fleets and two light fleets for Category II and four fleets and four light fleets for Category III, for a grand total of six fleets and seven light fleet carriers.[80]

In preparing their case, the Admiralty also challenged the assumption that only the first six weeks of war were vital to Britain's survival. In a sophisticated critique of the directive, Rear Admiral Sir Anthony Buzzard, the Director of Naval Intelligence, argued that the six week time frame would not only commit Britain to a policy of 'mass destruction' using nuclear weapons from the very start, but also make the avoidance of war much more difficult since the need to get in the first blow would become increasingly urgent.[81] The localisation of any conflict would also become more difficult and would likely bring Soviet atomic retaliation on the United Kingdom's ports and cities. Moreover, it was unlikely that a policy of mass destruction against the Soviet Union would succeed in six weeks. The US Strategic Air Command had recently shifted its targeting priority from cities and civilians to the Soviet war-making capacity. Recent intelligence studies now indicated that it would be approximately six months before attacks on the Soviet Union affected supplies to the army. The survival of the UK over a six to twelve month period was a much more realistic assessment, thus necessitating that provision be made for the protection of convoys and sea communications in the initial phase.

Nonetheless, Sandys animosity towards the navy continued unabated. In July, he raised a number of issues requiring further examination. In particular, he questioned the case for aircraft carriers, asking what Fleet Air Arm or general naval roles the RAF could carry out; could the USN provide carrier-borne air protection in the Atlantic leaving the UK to provide land-based aircraft and could the USN take over the whole task of

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80. 'Radical Review - Categorisation of RN Forces. Essential Tasks During the First Six Weeks of War', June 1953, ADM 205/89; JP (53) 99 (Final) 'Radical Review. Service Tables', 29 June 1953, DEFE 6/24.
81. 'Why Only Six Weeks for our Priority Requirements?', 6 July 1953, ADM 205/89.

dealing with the surface threat in the Atlantic?[82]

The Admiralty responded by arguing that the fighter defence of shipping, except in the immediate vicinity of shore bases, must be carrier-borne. The mobility of carriers also meant that they could be deployed in areas where no or insufficient air bases were available, enabling the carrier to operate in direct support of the fleet and convoys. Carriers had also justified themselves in the support of operations on land, providing fighter cover or amphibious support. Moreover, carriers were actually less vulnerable to atomic attack than shore-based air fields. Finally, the Admiralty made the point that Britain had already committed two fleet carriers to SACLANT's Striking Fleet. Not only were the Americans relying on Britain for this contribution, but also, for the first two weeks of war, they would be the only carriers available to SACLANT to support SACEUR's plan for the defence of Western Europe.[83] They would therefore afford Britain an important voice in the planning of Western operations.[84]

Defence expenditure for 1955-56 was finally fixed at £1,650 million. On the basis of the six week criterion, the Royal Navy's share was restricted to £360 million. The effect of this allocation on the navy, the Admiralty argued, would necessitate the scrapping of three fleet carriers and four battleships from the Reserve Fleet.[85] With the overall strength of the fleet already contracting, reductions in the size of the active fleet could not be considered; if Britain was 'to meet the calls of today...and to take the first shock of war', the need to provide new and modern ships was overriding.

This imperative was all the more urgent given the Royal Navy's recent abandonment of the new fleet carrier project in July 1953. The 53,000 ton carrier, planned for completion in 1958, had been approved by the Board in June 1952 as part of the Korean War defence build-up. It would be capable of operating aircraft up to 70,000 lbs,

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82. 'Review of Defence Expenditure', ADM 205/164.
83. 'The Case for Aircraft Carriers' and 'Fleet Carriers', 18 July 1953, ADM 205/89.
84. Friedman, *Postwar Naval Revolution*, 26.
85. D (53) 47 'Future of Certain Units of the Reserve Fleet', 13 October 1953, CAB 131/13.

including long-range nuclear strike aircraft.[86] This requirement had been painfully demonstrated during Exercise Mainbrace, where the Royal Navy's aircraft were found to be 'prehistoric', their carriers (with the exception of *Eagle*) 'obsolete' and 'only fit for A/S operations on trade routes or for Korean operations where there is no enemy fighter opposition.'[87]

With the cuts in defence expenditure, however, the Board had been forced to abandon the new carrier project. However, this did not signal the end of the navy's interest in carriers or indeed, their need for a new carrier. British carriers were still expected to form part of the NATO Strike Fleet and with the abandonment of the new carrier, the immediate problem for the Royal Navy was to ensure that their existing carriers could operate the latest nuclear-capable jet aircraft, such as N113 Scimitar and DH110 Sea Vixen fighters, expected to come into service after 1957. To meet the problem, the modernization plans for the fleet carrier *Victorious* and the light fleet carrier *Hermes* were changed to include the new Type 984 three-dimensional radar, a fully angled flight deck and steam catapults. In the meantime, the Admiralty expected to have available, by December 1954, two fleet carriers (*Ark Royal* and *Eagle*) and three light fleet carriers (*Centaur*, *Albion* and *Bulwark*) fitted with partially angled decks capable of operating Sea Hawks, Sea Venom's and ASW Gannet aircraft.[88]

In the longer term, the Admiralty hoped to modify *Eagle, Centaur* and *Bulwark* to the same standards as *Victorious* and *Hermes*, giving a fleet of five carriers capable of operating nuclear-strike aircraft. Work also continued on the design for a smaller, cheaper carrier - 30,000 to 35,000 tons - which would hopefully be laid down in 1957. It was anticipated that this smaller carrier might eventually be capable of operating Vertical Take-Off (VTO) aircraft that were then in development by the Americans (see chapter

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86. 'New Design Aircraft Carrier', ADM 1/24145; Board Minute 4587, 26 June 1952, ADM 167/140.
87. 'Note by Secretary to FSL', 29 September 1952; Fifth Sea Lord comments, 6 November 1952, ADM 205/85.
88. Note by D of P, 22 July 1954, ADM 205/102.

seven).[89]

The Prime Minister was shocked at the Admiralty's proposals to scrap so many ships from the Reserve Fleet., particularly with regard to the battleships. 'It is hardly possible to conceive such a penny wise pound foolish policy,' rebuked Churchill.[90] 'In the 'broken-backed' warfare likely to succeed the first atomic phase of the war, these ships would probably be able to fulfil a valuable role.' The Admiralty should therefore consider 'alternative measures' to secure a saving.[91] In the Prime Minister, the Admiralty therefore found an unlikely supporter for the concept of a long war, but it was not out of sympathy for the plight of the carrier but for the battleship, a relic of a bygone age of warfare that Churchill's concern emanated. As far as the Admiralty were concerned, there were no 'alternative measures' that could be taken unless 'very serious inroads' were made into other parts of the navy's programme.[92] 'If we are to be cut, financially, into the bone the most important thing,' argued the First Lord, James L. Thomas, 'will be to scrape up all we can towards a new construction and modernization programme related to those types of ships which are most urgently needed in the likely pattern of future naval warfare.'[93]

Despite the Prime Minister's apparent support for the concept of a broken-backed war, the 'overriding military issue of naval air' still had to be settled.[94] A satisfactory explanation of the role that carrier aviation would play in a future war had - at least to the mind of Duncan Sandys - yet to be given by the Admiralty. The role of the fleet carrier in particular, was proving especially difficult to establish. While it was well-known that the Americans intended to use its fleet carriers to support allied land forces in Europe,

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89. See Admiralty file 'Cheaper Carriers', ADM 1/25149.
90. Note from Churchill to First Lord, 18 September 1953, ADM 1/25103.
91. D (53) 13th Meeting, 14 October 1953, CAB 131/13.
92. Ibid.
93. Letter from First Lord to Churchill, 6 October 1953, ADM 205/91.
94. 'Review of Defence Expenditure', ADM 205/164.

the British Admiralty had to downplay the possible attack-at-source role of their fleet carriers to avoid antagonising the RAF. As a result, the exact scope and role of the British fleet carriers, especially within the Atlantic Striking Fleet, remained unclear.

In late October 1953, the Cabinet Defence Committee requested the Admiralty to define both the peace and wartime roles of the different types of carrier, the existing and proposed strength in the various types and the targets against which they will be used. The kinds of aircraft needed for the different types were also to be examined.[95] A memorandum by the First Lord in November spelt out the different roles of the different carrier types. Fleet carriers were an offensive covering force, attacking enemy forces at sea to protect allied sea communications and prevent the enemy from supporting his land forces. They would also provide air defence of naval forces and convoys outside the radius of shore-based aircraft and attack-at-source on targets vital to safeguarding sea communications, such as submarine bases and airfields. The types of aircraft to be carried in the fleets included the N.113 day fighter, the Sea Venom and DH.110 all weather fighters and the Wyvern strike aircraft. Light fleet carriers would also provide air and anti-submarine defence of naval forces and convoys, especially in areas where the threat of air attack was less heavy. They would operate fighters, ASW aircraft and helicopters, such as the Gannet and Seamew, and possibly strike aircraft if they faced a surface threat. In peacetime, both types of carriers would be responsible for transporting troops and stores as well as contributing to the deterrent against aggression.

Addressing directly the 'misapprehension' as to the functions of aircraft carriers in a modern navy, the First Lord made special mention of the main role of Britain's fleet carriers to support the Striking Fleet. He was careful to stress, however, that while attacks by aircraft from the Striking Fleet on the source of the threats to allied sea communications was a primary aim, this was complementary to, and not in competition with, attacks by shore-based strategic air forces. Indeed, the main role of Britain's fleet

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95. 'The Role of Aircraft Carriers', 9 November 1953, ADM 1/24695. The next 2 paragraphs are based on this source.

carriers was to 'hold the ring alone' until the American element of the Strike Fleet could reach the Eastern Atlantic, which was not likely to be before D+15 days.

Even more fundamentally, there was also the matter of British prestige and influence to consider, particularly in exercising leverage over the planning and conduct of military operations in Western Europe:

> Although the Americans provide the greater part of the Strike Fleet, we cannot leave to one Ally complete responsibility for offensive naval warfare. We must continue to provide our share, on which the Americans - who also maintain powerful striking forces in the Mediterranean and Pacific - are relying and without which we cannot expect a voice in the employment of these forces.

However, the First Lord's paper cut no ice with Sandys. At a meeting of the Radical Review Committee to discuss the issue, he continued to question the need for fleet carriers at all.[96] Their role in the defence of Norway, for example, was not 'a matter of strategic priority' to the defence of either Western Europe or the United Kingdom. Moreover, in offensive operations against enemy naval bases or protecting convoys against Russian *Sverdlov*'s, he 'could not understand why land based bombers could not perform these tasks with equal if not greater efficiency', while the United States fleet could also be relied upon to carry out these tasks. Thus, while Sandys agreed that carriers 'were desirable and should be provided if money were unlimited', he did not agree that in the current financial situation any money should be spent on them.

Churchill, now increasingly anti-carrier, agreed with Sandys that the justification for spending money on fleet carriers required further consideration. Although only a few months earlier the Prime Minister had staunchly defended keeping battleships and fleet carriers in reserve, he was now of the opinion that:

> the reign of the aircraft carriers is over. They will die out surely and swiftly as a factor. This is because first, the aircraft maintained upon them are much more costly to maintain and keep afloat than shore-based aircraft and secondly, they

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96. Minutes of Meeting on 10 November 1953 in ADM 1/24695.

> are themselves an increasingly vulnerable target for shore-based bombing and guided missiles. One hit may be fatal...The battleships and carriers of our former glory will increasingly become floating bull's-eyes. This must wring our hearts, but must not hide the truth...[97]

In late November, Churchill therefore asked the Minister of Defence for an appreciation of the strategical, political and financial implications of limiting the Royal Navy's carriers to local convoy protection and asking the US Navy to undertake all other tasks that shore-based aircraft could not do.[98] In his report to the Prime Minister in January 1954, the Minister of Defence, A.V. Alexander, proposed that the Admiralty should still retain its fleet carriers: the *Ark Royal* in commission with the fleet and *Eagle* and *Illustrious* for trials and training. However, *Ark Royal* should be equipped with aircraft only as a light fleet carrier and the modernization of the fleet carrier *Victorious* and the light fleet *Hermes* should be cancelled. Three light fleet carriers would also be retained. Finally, the Fleet Air Arm should only be equipped with aircraft which were intended to be operated from a light fleet carrier in defence of convoys against submarine and air attack. No other strike role should be provided for.[99]

Not surprisingly, these proposals were rejected by the Admiralty for taking away the striking power of the navy. 'The Admiralty regard as of supreme importance their promise to NATO of two heavy carriers properly equipped with the latest strike aircraft', countered the First Lord. 'Our proposals are to make proper use of what we already have...carriers known to be capable of operating aircraft carrying the atomic bomb are essential to the Navy in the coming decade.'

Thomas also played up to the political sensitivity surrounding the command issue in NATO. In August 1950, the British Government had reluctantly conceded the SACLANT command to an American admiral, causing much indignation in domestic circles. The issue of command in the Mediterranean had proven equally controversial.

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97. Minute by Churchill, 23 November 1953, PREM 11/614.
98. Board Minute 4734, 4 February 1954, ADM 167/144.
99. Ibid.

Anxious to retain control of the US Sixth Fleet to support SACEURS's southern flank, the Americans had insisted that they control all but the eastern end of the Mediterranean (where they had little interest). Britain, however, was determined to retain responsibility for all the Mediterranean. A compromise was only reached in late 1952 when the US agreed that the British Mediterranean Fleet Commander (Admiral Mountbatten) could become Commander in Chief of the Allied Forces (CINCAFMED) in the Mediterranean. He would be responsible to SACEUR for all naval operations except those of the US Sixth Fleet, which remained under the American Southern European command (CINCSOUTH) as STRIKFORSOUTH.[100]

Against this background, the First Lord argued that:

> all naval circles, British and allied, would be alarmed to see that the finest heavy carriers in the world for North Atlantic conditions are not to be used for the purpose for which they were built and for which they are so well suited. I am afraid also that there can be no doubt of the effect on the American susceptibilities over the naval command which you gained for us.[101]

In defending their case, the navy also argued that their claim to a strike role had been enhanced by the recent shifts in American strategic bombing policy. With the emphasis now on the destruction of enemy airfields and bases rather than cities, there was less need for a British bomber force to influence SAC's targeting priorities. The likely concentration of Soviet atomic effort on allied airfields also raised the possibility that the RAF's bomber force would be destroyed on the ground before it had achieved anything. Conversely, this improved the case for smaller naval aircraft and mobile carrier forces operating around the flanks of Europe. It also strengthened the case for striking Soviet surface forces, shipping and amphibious forces in order to hold Western Europe.[102]

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100. Grove, *Vanguard to Trident*, 103-104. For more the issue of the Mediterranean command in NATO, see Maloney, *Securing Command of the Sea*, 170-194 and Sokolsky, *Seapower in a Nuclear Age*, 29-36.
101. Note from FLA to Churchill, 22 February 1954, ADM 205/95.
102. See note from Buzzard to FSL, 22 January 1954, ADM 205/94.

The debate over the role of carrier aviation in a future war was apparently settled by the early spring of 1954. The Royal Navy and the RAF were finally able to reach a consensus on the thorny issue of responsibility for the strike role. In discussions in December 1953, the First Sea Lord and the Chief of the Air Staff had agreed that Bomber Command would not be able to undertake the tasks assigned to the Striking Fleet unless considerably reinforced.[103] Indeed, although a target figure of 240 V-bombers by 1957 had apparently been adopted after the 1952 Global Strategy paper, Britain's long-range nuclear bomber force in 1954 numbered only twelve and the first squadron did not come into service until 1955.[104] Thus, it was conceded that the navy's carriers might be more effective in striking northern targets and better suited to offensive minelaying. Furthermore, contributing two fleet carriers was considered to be 'a small price to pay' for having a say in the employment of the Strike Fleet.

The RAF's change of attitude was probably due in no small part to the Admiralty's recent proposal to transfer the Coastal Command of the RAF to the Royal Navy. The suggestion had received some ministerial support, partly to encourage the navy to relinquish its carrier force and partly to compensate for its loss. As Sir Norman Brook, the Cabinet Secretary, put it: 'the Navy will feel some loss of prestige as a result of the inevitable reductions in carriers...This might be offset by giving them control over all air operations against targets at sea.'[105]

The Admiralty therefore finally accepted a figure of £360 million for 1955-56. They were allowed to keep two fleet and three light fleet carriers, although a decision on whether the new strike aircraft, the NA 39 Buccaneer, should be developed for the navy was deferred. The modernization of *Victorious* and *Hermes* was also allowed to proceed as planned.[106]

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103. Note by FSL on conversation with CAS, 22 December 1953, ADM 205/93.
104. Friedman, *Postwar Naval Revolution*, 15; Pierre, *Nuclear Politics*, 154-155.
105. Memorandum from Brook to Churchill, 26 November 1953, PREM 11/614.
106. Board Minute 4747, 26 February 1954, ADM 167/144.

***United States***

In the United States, the process of strategic reorientation started much later than in Britain. Serious efforts to reduce defence expenditure and decrease conventional rearmament in favour of an increased dependence on nuclear weapons as the primary deterrent did not generally occur until the election of the Eisenhower Administration in early 1953. While the ability of the American economy to absorb the costs of massive conventional rearmament for longer than Britain certainly accounts for some of the time difference between the strategic reassessments undertaken in Britain and the United States, there was also a more fundamental difference of opinion between the two countries defence establishments that helps to explain the dissimilarity. Not only did American assessments of the possible threat from the Soviet Union place greater stress on the likelihood of an imminent attack on the West, but the belief in the ability of nuclear weapons to deter war was also much lower than in Britain. Before 1953, these two factors led to an inevitable conclusion in American defence planning circles - that the conventional armaments of the West should be rapidly built up in order to deter a Soviet onslaught. Indeed, this was the strategic rationale behind NSC 68 of March 1950, which had cautioned against relying only on nuclear weapons to provide security and thus called for a large increase in conventional forces to deter, or indeed fight, a war.

Not surprisingly, the 1952 British Defence Policy and Global Strategy paper was not well received by the Americans. The British Chiefs of Staff had hoped that the paper would encourage NATO to reassess its strategic concept and force requirements and reduce the Lisbon force goals. Before this could be achieved, however, it would be necessary to secure America's general acceptance of the new strategic concept proposed, not only because it was economically inevitable but also on the grounds that it was militarily sound. Support for the proposed reductions in conventional forces would also

have to be obtained.[107]

Although the US Joint Chiefs of Staff were generally sympathetic with Britain's economic difficulties, preferring that she 'pull in her military horns' rather than reach some accommodation with the Russians, they disagreed fundamentally with the GSP.[108] In the first place, the JCS considered that the risk of war was greater in 1954 than the British estimate of 1956, since by then the Soviets would have a considerable stock of atomic bombs. Second, the US army and navy felt Britain had overestimated the deterrent effect of the atom bomb, placing 'premature confidence in the advances in strategic warfare, especially SAC.' That Britain should 'tie their strategy firmly to an inordinate evaluation of the effects of this bomb' was even more inconsistent given their own admission that Britain was not yet in a position to assess the possible strategic affect of the atom bomb. Finally, the Strategic Plans Division at the Navy Department was particularly despondent to see the apparent 'abandonment of Britain's traditional dependence on the effectiveness of sea power.' Indeed, with the hand of the RAF looming large in the GSP, the SPD concluded, perhaps a little unfairly, that 'it could have been written on Admiral McGrigors's day off.'

American plans for building up large conventional forces, as per NSC 68, thus continued apace during 1952. The Secretary of the Navy, Dan A. Kimball, for example, officially called for a minimum of twelve *Forrestal* class carriers to be built if the block obsolescence of carriers in the 1960s was to be avoided and the navy was to continue in its primary mission of gaining and maintaining control of the seas and air in which the fleet operates.[109] In addition to twelve large carriers, the navy's programme for 1953 to

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107. D (52) 26, CAB 131/12; COS (52) 98th Meeting, 8 July 1952 & 105th Meeting, 22 July 1952, DEFE 4/55.
108. 'Defense Policy & Global Strategy. Report by UK Chiefs of Staff', 25 July 1952, Folder A1, SPD, Box 272; COS (52) 443 'Discussions in Washington on Global Strategy with the US JCS & State Department', 18 August 1952, DEFE 5/41; Telegram from Sir William Elliot (BJSM) to MOD, 26 June 1952, PREM 11/49.
109. Semiannual Report of the Secretary of the Navy, January 1 to June 30 1952, 22 September 1952, in *Semiannual Report of the Secretary of Defense & Semiannual Reports of the Secretary of the Army, Secretary of the Navy, Secretary of the Air Force, January 1 to June 20 1952* (Washington: US

1957 also envisaged a minimum of fifteen small ASW or escort carriers, sixteen carrier air groups, fifteen ASW squadrons, four ASW helicopter squadrons and thirty-four patrol squadrons. The estimated cost of the programme was $16.2 billion in FY 1953, $15.6 billion in FY 1954 and approximately $14.5 billion a year thereafter.[110]

Nonetheless, it was slowly becoming apparent that the burden of defence, especially within the context of the NATO alliance, was now too costly to maintain unchecked. A report on NATO naval readiness by the General Planning Group of the Office of the CNO in July 1952 revealed that the United States would be responsible for providing over 80 per cent of the major combatant vessels required on D-Day.[111] The USN's programme to construct additional *Forrestal* class carriers was also coming under fire from the US Army and Air Force. Although the principal objection - that the navy did not need additional carriers of this size - was made on strategic grounds, it was also argued that, at an estimated cost of $209 million per carrier, excluding the cost of the aircraft to operate from it, further construction should not be attempted until at least the first *Forrestal* had been built and tested. Given the equipment deficiencies of the other services, pressure was therefore mounting for resources to be allocated in such a way as to ensure the greatest increase in combat capability for each investment.[112]

With the material and financial costs of rearmament steadily increasing, the decision was taken in early 1952 to stretch-out the build-up of conventional forces and reduce the FY 1953 military budget.[113] The navy's share dropped by $2.6 billion in comparison to the previous year's budget, with the consequence that construction of the second *Forrestal* class carrier, USS *Saratoga*, had to be postponed and the fleet would be short

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Government Printing Office, 1952), 193.

110. 'Presentation of Navy Program, Fiscal Years 1953-57', 31 October 1951, Folder A1, SPD, Box 258.

111. Sokolsky, *Seapower in the Nuclear Age*, 21.

112. JCS 1800/190 'Views of the Department of Defence on HR 5078 (The 'Super Carrier' Bill) & H.Res 258', 26 April 1952, File 370, sec. 38, RG 218/Decimal File/1951-53, Box 125.

113. JCS 1800/183 'Implications of a Reduction in the Proposed Military Budget for FY 1953', 4 January 1952, File 370, sec. 37, RG 218/Decimal Files/1951-53, Box 124.

of 400 modern aircraft by the end of 1954.[114]

By the end of 1952, therefore, the pressures for a review of defence policy were mounting and, as in Britain, the immediate cause was economic and not strategic. The rearmament programme embarked upon in 1950 had resulted in higher inflation, tax increases and a rising national debt - nearly $275 billion in 1953.[115] Even with their much larger material and financial resources, the economic difficulties of attempting to counter the superior land power of the Soviets by massive conventional rearmament were gradually driving the Americans to look again at their defence programme.

However, as in Britain, the single most significant event forcing a strategic reassessment at this time was the election of a new government and more pro-nuclear leader. Both the Conservative government in Britain and the Republican Administration in the United States were on the right of the political spectrum and headed by men who had played a dominant role in World War II . Although this raises interesting comparisons which lie outside the scope of this study, it is nonetheless apparent that both Churchill and Eisenhower, as individuals, were fundamental to the adoption of a more nuclear orientated defence posture in their respective countries. It has already been noted that Churchill was 'a total convert to atomic airpower.'[116] As for Eisenhower, the historian David Rosenberg has written that '[w]here Harry Truman viewed the atomic bomb as an instrument of terror and a weapon of the last resort, Dwight Eisenhower viewed it as an integral part of American defense, and, in effect, a weapon of the first resort.'[117] Certainly, as the architect of NATO's plans for the defence of Western Europe, Eisenhower was more savvy than many of his contemporaries about the capabilities of nuclear weapons and more willing to countenance their possible use in a

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114. 'Military Implications of the FY 53 Budget Decisions', 4 January 1952, ibid.
115. Saki Dockrill, *Eisenhower's New Look National Security Policy, 1953-1961* (London, Macmillan, 1996), 19.
116. Clark & Wheeler, *British Origins of Nuclear Strategy*, 151.
117. Rosenberg, 'Origins of Overkill', 28.

war.

Like Churchill a year earlier, Eisenhower's first step towards revising America's national security policy was to reduce defence expenditure. He cut the FY 1954 defence budget by $7.5 billion to $41.3 billion and fixed the FY 1955 budget at $34.6 billion. The US Navy's share was $11.2 billion and $9.2 billion respectively, the latter being the smallest navy budget since 1951 and threatening reductions in aircraft procurement, shipbuilding and personnel. The Joint Chiefs issued a warning that the magnitude of the cuts would 'make necessary a reexamination of US national objectives and policies with a reexamination of military strategy and tasks.' [118] However, as the historian Saki Dockrill points out, this was precisely the direction in which Eisenhower wished to steer American defence policy. His motivation in reducing defence expenditure was not solely economic; it was also strategic, based on the belief that the Soviet Union now posed a long-term, and not a short-term, threat to the security of the United States. The cuts were just 'the logical conclusion of the institutionalisation of the cold war.'[119]

The immediate origins of Eisenhower's strategic review lay in a series of studies undertaken in the spring of 1953. The so-called 'Solarium Exercise' investigated the future of national security policy under three different lines of strategy - containment, nuclear deterrence and response and 'roll-back'.[120] The alternative courses did not offer a unified strategy; while containment and 'roll-back' encouraged the continued build up of military forces and high levels of defence expenditure, the option of nuclear deterrence and war-fighting capabilities seemed to suggest less costly military preparations. Despite their differences, the Solarium exercise was used as the basis for

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118. JSPC 851/84 'Effect of Approaching a Balanced Budget in FY 1954 & Achieving a Balanced Budget in FY 1955', 16 March 1953 & 'Study and Appraisal of the Effect of Tentative Expenditure Limitations for Fiscal Years 1954-56', 16 March 1953, File 370, sec. 40, RG 218/Decimal File/1951-53, Box 125.

119. Dockrill, *Eisenhower's New Look*, 29-30.

120. For more on the Solarium Exercise, see Dockrill, *Eisenhower's New Look*, 33-35 and Marc Trachtenberg, 'A "Wasting Asset". American Strategy and the Shifting Nuclear Balance, 1949-1954', *International Security*, vol. 13, no. 3 (Winter 1988-89), 35-37.

further examination of national security policy by the NSC during the summer of 1953, climaxing in October with the authorization of NSC 162/2, or the 'New Look.'

NSC 162/2 reflected Eisenhower's belief that the threat posed by the Soviet Union would continue for the foreseeable future and that the United States military forces should thus prepare for the 'long run', rather than focus on a year of 'maximum danger' as prescribed in NSC 68.[121] Since the US economy could not support indefinitely a large military build up of the order initiated in 1950, the cheapest defence posture for the long haul would be to rely upon superior nuclear capabilities to deter aggression. Despite the Soviet Union's explosion of a thermonuclear bomb in August 1953, ushering in an era of mutual vulnerability, nuclear power was still regarded as 'an index of relative power', where the West's atomic superiority would intimidate the Soviets 'to the point of desisting from aggression.'[122] Thus, Soviet aggression, including local aggression, would be deterred 'by maintaining a strong security posture, with an emphasis on adequate offensive retaliatory strength and defensive strength' based on a 'massive atomic capability.' With the emphasis now on nuclear armaments, conventional forces were not to be increased. Instead, greater reliance would be placed on allies for providing forces to counter local aggression, while the United States atomic capability would be its major contribution to collective security. In contrast to the British Global Strategy paper, the armed forces were not to prepare for protracted, 'broken backed' warfare after the initial nuclear phase.

As the JCS began formulating the new military strategy and posture to implement NSC 162/2, the Navy set about defending their role in national security policy.[123] In general, they were concerned that NSC 162/2 would lead to an exaggerated reliance on

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121. NSC 162/2, *Foreign Relations of the United States 1952-4: National Security Affairs*, vol. 2 (Washington DC: United States Government Printing Office, 1984), 577-597; JCS 2101/113 'Military Strategy & Posture', 10 December 1953, File 381, sec. 32, RG 218/Geographic File/1954-56, Box 36.
122. Clark & Wheeler, *British Origins of Nuclear Strategy*. 181.
123. JCS 2101/112 'Military Strategy and Posture', memorandum by CNO, 7 December 1953, File 381, sec. 32, RG 218/Geographic File/1954-56, Box 36. The next two paragraphs, unless otherwise stated, are based on this document.

atomic air power in strategy; in particular, they feared that the Air Force would continue to expand indefinitely at their expense. The emphasis, argued that navy planners, should be on the quality, not the quantity, of the armed forces to be maintained. It should be noted that the navy were not opposed to maintaining a strong US atomic air capability. As Rear Admiral Henry Miller from the Strategic Plans Division commented some years later, the atomic bomb 'was doing a pretty good job for us.'[124] Nonetheless, they were determined that it should not be at the expense of neglecting other military capabilities, particularly for the control of sea communications and vital sea areas adjacent to ground operations. In this context, naval aviation was particularly important. 'US military air power,' argued the planners:

> comprises Air Force, Navy and Marine Corps air power; all three play vital roles in our military posture and none must be neglected it that posture is to be truly effective. Naval air forces, including carrier aircraft and Marine aviation...have repeatedly proved their effectiveness and value.

Maintaining control of the sea, in the face of Soviet surface, submarine, air and mining threats was also the cornerstone of the NATO alliance, whose members looked to the sea for their deliverance in the form of logistical support, reinforcement and evacuation.

The USN also objected to NSC 162/2 on the grounds that it was too inflexible. Not only was it 'based on a predetermined concept of enemy intentions' but it also threatened to circumscribe military capabilities by encouraging forces 'capable of countering only one predetermined enemy course of action'. Although a massive air retaliatory capability might deter overt Soviet aggression, it would not prevent them from pursuing their objectives by other means where the use of atomic weapons would be inappropriate, perhaps even detrimental to the interests of the United States. More than one type of war was possible and it may not be nuclear. A flexible, balanced military

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124. Reminiscences of Rear Admiral Henry L. Miller, USN, vol. I, interview with John T. Mason Jr., US Naval Institute, March 1971, OAB, 180.

force of all arms, with a variety of capabilities was called for. The security policy set forth in NSC 162/2 therefore did not allow for any reduction in US naval capabilities; on the contrary, it even demanded their enhancement.[125]

Just as the US Navy did not envisage that there would be only one type of war in the future, nor did they envisage fulfilling just one role either. Gaining and maintaining control of the seas necessary for the deployment of strategic air forces and the provision of tactical and logistical support to forces overseas was not the limit of their ambitions at this time. Not only were these duties not exciting but they were also unlikely to bring an increased naval budget with them.[126] Once the 'New Look' had been approved in December 1953, therefore, the navy set about claiming a strategic nuclear role of its own. After all, the US Navy already had a nuclear delivery capability in the AJ-1 Savage then in service with the US Sixth Fleet in the Mediterranean and once the USS *Forrestal* was completed, the carriers from which to operate them. All that was needed now were the bombs and the targets against which they would be used. In early 1954, therefore, the navy lobbied for, and secured agreement to, its inclusion in strategic nuclear attack planning.[127]

## III. Anglo-American Carrier Aviation in the Thermonuclear Era, 1954-55

In both Britain and the United States, the strategic reorientation in favour of greater reliance on nuclear deterrence and retaliation was reinforced by the Soviet Union's explosion of a thermonuclear bomb ('H-bomb') in August 1953. In the United States, this unexpected and shocking event coincided with the review of national security policy

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125. JCS 2101/11, memorandum from Lemuel C. Shepherd, Commandant of the Marine Corps, 5 December 1953, File 381, sec. 32, RG 218/Geographic File/1954-56, Box 36.
126. Coletta, *American Secretaries of the Navy*, vol. II *1913-1972*, 852.
127. Rosenberg, 'Postwar Air Doctrine', 268; Friedman, *US Aircraft Carriers*, 22.

already underway and was certainly an important factor determining the final shape of the 'New Look'. In the thermonuclear age, for example, large conventional military forces were considered to be an unnecessary expenditure and in the wake of NSC 162, military programmes and budgets were pruned accordingly. The US Navy's programme for FY 1955 to FY 1957 was to be reduced from 1,131 active ships and 733,950 personnel at the end of FY 1954 to 1,032 ships and 650,000 personnel by the end of FY 1957, including the reduction of USN forces in the West Pacific by one CVA and one CVE.[128]

For the remainder of the period under discussion, the US Navy set about strengthening its role in national security policy. Although it had already secured a role for itself in the nuclear strike mission, the advent of the H-bomb had rekindled opposition from those who believed that there was no role for navies at all in the nuclear era. The navy's carrier aviation programme came under particularly close scrutiny, especially from the Strategic Air Command, where suspicions lingered as to the real extent of the navy's atomic air ambitions.

The USN's response fell generally into three main lines of argument. Firstly, it argued that despite the greater destructive power of thermonuclear weapons, their use in war, though important, would not be decisive. Gaining and maintaining control of the seas would remain a vital task if allied forces in Europe were to be reinforced and resupplied. The importance of traditional sea control duties, such as convoy protection and the destruction of enemy maritime forces, at sea and at source, using both conventional and atomic weapons, were therefore reaffirmed.[129]

Secondly, it was possible that a future war would not include the use of nuclear weapons at all or be on the grand scale envisaged. If deterred from making a nuclear

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128. JCS 2101/114 'Extension of Military Programs and Budget Estimates', 17 December 1953, File 381, sec. 32; JCS 2101/135 'Navy Force Levels for FY 1955', 8 June 1954, File 381, sec. 39, RG 218/Geographic File/1954-1956, Box 36.
129. See, for example, 'COMAIRLANT Ship's Characteristics Committee Study No 2-54', 1 March 1954, Folder L(1), SPD, Box 303.

strike, the enemy may attempt to seek his objectives 'through limited military operations and other actions of lesser scope and lesser hazard.'[130] The national military strategy should also be able to meet this threat and the United States:

> must be prepared to counter any action that the aggressor takes and engage in whatever form of warfare was appropriate to thwart his moves..the Armed Forces must therefore be prepared to take part in a local war or in a global one, they must be ready to fight in the Artics or Tropics, in the Eastern or Western Hemisphere and they must be equally able to wage war with traditional weapons and with the growing arsenal of atomic weapons.[131]

Indeed, the navy's view appeared to be vindicated in the spring of 1954 when the French appealed to the Americans for help in defeating the guerilla war being waged against them in French Indochina. The planned reduction in the number of active ships in the fleet was consequently suspended and three USN carriers were sent to the South China Sea, poised to undertake air strikes against the Vietminh forces.[132]

Finally, to reinsure their role in atomic air strikes, the USN argued that since it was possible that a limited or local war may escalate or be a 'stepping stone' to an all-out nuclear war, it was essential to maintain readiness for such an eventuality 'on the highest priority basis.'[133] The backbone of the navy's striking power was the aircraft carrier which, by virtue of its greater mobility, may be the only deterrent available in a thermonuclear war. While the enemy had many 'attractive' fixed-base targets, such as airfields, to attack in a war, the exact position of a carrier task force was more difficult to

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130. JCS 1800/214, 'Summary of Navy Programs and Budget Estimates for FY 1956 & 1957', 10 March 1954, File 370, sec. 45, RG 218/Decimal File/1954-56, Box 99.

131. Semiannual Report of the Secretary of the Navy, January 1 to June 30 1954, 13 December 1954, in *Semiannual Report of the Secretary of Defense and Semiannual Reports of the Secretary of the Army, Secretary of the Navy and Secretary of the Air Force, January 1 to June 30 1954* (Washington D.C.: US Government Printing Office, 1955), 157.

132. JCS 2101/135, 8 June 1954, RG 218/Geographic File/1954-1956, Box 36; Hagan, *In Peace and War*, 315. The CVA's *Essex*, *Wasp* and *Boxer* were not actually used against the Vietminh and the French were overrun in Indochina in May 1954.

133. 'Technological Developments which the Navy should Attempt to Incorporate in its Weapon Systems', memorandum by Office of Naval Research, 1 February 1955, Folder A16-8, SPD, Box 319.

locate and the enemy would be unable to predict where or when a CTF will strike.[134] Indeed, 'so important are moving bases in this nuclear era,' remarked the Secretary of the Navy, Charles Thomas, 'that if we did not have them, we would be forced to invent them.'[135]

The USN therefore spent 1954 and 1955 building up their atomic weapons delivery potential. In October 1954, USS *Forrestal* was commissioned. In 1952 the contract for the second *Forrestal* class - USS *Saratroga* - had been awarded, while the contract for the third and fourth ships of this class, USS *Ranger* and USS *Independence* was also awarded. Following the recommendations of the first interim report on the Long-Range Ship Building Plans and Programme initiated by the Navy Department in 1954, plans were also underway to equip all CVA's with atomic bomb employment capabilities by 30 June 1955. In addition, four CVA's were to have an atomic missile employment capability while four were to have an atomic depth bomb employment capability.[136] In January 1955, the first nuclear-powered warship, the submarine USS *Nautilus* was launched and consideration was also being given to the merits of nuclear versus conventionally powered aircraft carriers. Although a nuclear powered carrier would be of much greater size than a *Forrestal*-type carrier - 83,000 tons compared to 76,800 tons - with a slightly slower speed and higher initial costs, it would also offer drastically increased endurance - 96,000 miles at full power compared to 4,800.[137]

Such were the cumulative changes afoot by 1955, that Thomas proclaimed the year 1955 'as the birthdate of a new USN':

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134. 'Attack Aircraft Carriers. Mobile Striking Power', 14 February 1957, Carriers (CVA Class ships) File, Carriers General (8), Classes of Carriers, NAHB.
135. 'The Navy's Offensive Role in the Nuclear Era', remarks by SecNav Charles S. Thomas before the Los Angeles World Affairs Council, 1 March 1955, Carriers (Nuclear) File, Carriers General (8), Classes of Carriers, Naval Aviation History Branch.
136. JSPC 851/134 'Command and Organizational Structure of US Forces: Forces and Manning Levels', 18 January 1955, File 370, sec. 49, RG 218/Decimal File/1954-56, Box 100.
137. 'Relative Merits of Nuclear vs Conventionally Powered Aircraft Carrier', letter from BuShips to CNO, 21 April 1955, Folder A16-8, SPD, Box 319.

> Our naval forces are undergoing the greatest change in their history - from guns to guided missiles, from gunpowder to nuclear weapons, from subsonic to supersonic aircraft speeds and from petroleum to nuclear fuels.[138]

In a paper presented to the House Appropriations Committee in March 1955 defending the role of aircraft carriers in modern warfare, particularly the need to build more *Forrestal*-class carriers, the Chief of Naval Operations, Admiral Robert Carney, gave a clear exposition of the many functions carriers were now expected to play in a future war.[139] The CNO began by reasserting the vital need for the USN to control the seas to support allied land and air forces. Key to gaining and maintaining command of the sea was to attack-at-source the threats to that control, including the bases from which the enemy airplane and submarine came. As the principal offensive power of the modern navy, the carrier task force would be responsible for attacking enemy forces 'of any kind' threatening the lines of communication, as well as supporting amphibious operations and defending ground forces. Carrier air power, it was stressed, was not in competition with SAC, which was primarily directed against the industrial heart of the Soviet Union. Rather it was those enemy forces and bases directly threatening the control of the seas that would be targeted.

Turning to the long-term future, Carney argued that naval power would still be essential in the thermonuclear age. The initial intercontinental delivery of thermonuclear weapons was not expected to be decisive and there would still be the problem of transporting the weapons across the oceans. Thus, the enemy would not be able to invade or attack unless they gained control of the sea first. Naval power would also be needed in the event that nuclear weapons were not used, 'to supply, reinforce, support

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138. Semiannual Report of the Secretary of the Navy, January 1 to June 30, 1955 (n.d.), *Semiannual Report of the Secretary of Defense and Semiannual Reports of the Secretary of the Army, Secretary of the Navy and Secretary of the Air Force, January 1 to June 30 1955* (Washington D.C.: US Government Printing Office, 1956), 141.

139. 'Missions of the Navy and Function of the Carrier Force Therein', 4 March 1955, Carrier (Role of Carriers) File, Carriers General (2), Theories & Concepts, NAHB. The following four paragraphs are based on this source.

land and air forces overseas, sustain allies [and] launch new fronts against the enemy.' The fact that the Soviets were now engaged in extensive naval building merely supported the contention that a long war, rather than a 'quick nuclear knockout' was a possibility.

The carrier would thus continue to be the backbone of the navy in the future. Despite the development of guided missiles, the carrier's usefulness would not depreciate. The versatility of carrier aircraft to attack fixed, moving, airborne, seaborne and ground targets, with both conventional and nuclear weapons, would remain invaluable.

Nor should the deterrent effect of carrier airpower should be underestimated:

> no Soviet commander will dare ignore the potential threat of naval striking forces possessing the most modern jet aircraft and known to possess significant nuclear weapons capacity...They are the bases which, because they are moving, he could not set up for attack with long range ballistic missiles...they are the one means of powerful retaliation which he could not eliminate by surprise attack. The existence of these mobile striking forces may be the last ounce of deterrent that in the final analysis deters.

In a separate paper, the Strategic Plans Division clearly spelled out the role of the US Navy in NATO's nuclear strike missions. The targets against which the USN planned an atomic attack included Soviet submarines, surface and air forces in being and supporting bases in the Baltic, Norwegian, Barents and White Sea areas. The attacks would be closely coordinated with SAC. In the Mediterranean, where US carrier forces worked directly in support of SACEUR and the land battle, atomic strikes would be undertaken against Soviet naval forces, bases, facilities and supply lines in and around the Black Sea.[140]

To support all these tasks, the USN planned to have in being no later than 1970 a 'powerful striking force of diverse types with the emphasis on flexibility and versatility', balanced 'between the high quantity delivery requirements of conventional or limited war and the high quality but light quantity atomic delivery capabilities required to

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140. 'Responsibilities of US Navy in NATO Air Atomic Mission (classified version)', 18 February 1955, Folder A16-10, SPD, Box 319.

conduct or deter all-out war.'[141] Fifteen CVA's, including six new nuclear powered carriers (CVAN) costing $1,375 million, and six *Forrestal*-class carriers were needed, in addition to five ASW support carriers (CVS). A further nineteen CVS and thirty-nine escort carriers, including some helicopter carriers, were required for defensive duties. A total of fifty active carriers in 1970 was proposed. While the USN's long-range nuclear delivery capability would be provided by missiles operated from submarines, a new long-range jet seaplane, the Martin P6M Seamaster, was also envisaged for mining, reconnaissance and long-range nuclear strike missions.[142]

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As in the United States, the advent of thermonuclear weapons also strengthened the nuclear emphasis in British defence planning. In July 1954, for example, the Cabinet authorized the production of a British thermonuclear bomb.[143] Churchill was particularly keen to add the H-bomb to Britain's nuclear arsenal. Not only was this weapon overwhelmingly powerful but, more significantly, it was also essential for Britain to join the 'H-Club' if she was to maintain world influence.[144] At the same time, a report by the Chiefs of Staff assessing the strategic impact of the H-bomb argued that:

> [t]he nuclear threat is the main deterrent to war. Moreover, an immediate and overwhelming counter-offensive with the most powerful nuclear weapons appears the only hope of defeating the enemy's attempt to destroy us and bring

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141. 'Draft of Proposed Conclusions of the Ad Hoc Committee and Minutes of Meetings', memorandum from Director of Studies, Ad Hoc Committee to Study Long-Range Shipbuilding Plans and Programs, 21 October 1955, Folder A19(1), SPD, Box 320. See also the revisions made to the draft report, 7 December 1955, in the same file.
142. The Seamaster also required its own base ship (AVA), but due to the cost of the Polaris missile submarines, the attack sea plane programme was cancelled.
143. Grove, *Vanguard to Trident*, 110.
144. COS (54) 54th Meeting, 12 May 1954, DEFE 4/70.

> the war to an early halt. We must therefore produce the required stockpile of nuclear weapons and the means of delivering them.[145]

It was thought unlikely, given the United States nuclear superiority, that the Soviet Union would deliberately provoke war during the next three to four years. If it did, the initial bombardment would be devastating in effect, with neither Britain or America able to function as a main support areas for a significant period. Even so, the war was likely to go on for some time. Gaining and maintaining control of the sea from the outset would therefore be vital, particularly since the Soviet Union was now considered to be a first-class naval power:

> we can expect that, concurrently with strategic air operations, major attacks will be made by Soviet Naval, land and amphibious forces, supported by part of the Soviet nuclear potential, against Western Europe and our sea communications.[146]

Although the COS therefore endorsed the need to protect sea communications in a thermonuclear war, the advent of thermonuclear weapons also revived the debate over the need for large naval forces in the nuclear age. With the cold war apparently set to continue for some time, the priority must be to meet this commitment and as cheaply as possible. The emergence of the H-bomb thus provided the Government with the opportunity to further prune defence costs.

In April 1954, for example, another Radical Review of defence expenditure was initiated. This time, it aimed to cut £200 million from the 1955 defence budget. The proposed cut in the Royal Navy's estimates was £25 million, which included a reduction of personnel to 120,000, the loss of an operational aircraft carrier and the extension of the new construction programme.[147] The total reductions of all three services fell far short of the required cut, so another Defence Review Committee, the Swinton

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145. The original report, produced at the end of July 1954, is still classified, but its main features are outlined in D (54) 43 'UK Defence Policy', 23 December 1954, CAB 131/14.
146. Ibid.
147. 'Review of Defence Expenditure', ADM 205/89.

Committee, was established in July 1954 to scrutinize expenditure.[148]

The Swinton Committee rounded on the Royal Navy, especially its naval aviation programme, as its chief object for attack. In general terms, the Committee argued that the relative importance of sea power in the thermonuclear age was 'evidently diminishing', and 'there can be no question of having a larger Navy than we need or can afford.' In particular, the cost of the Fleet Air Arm and the fleet carrier 'impose[d] a burden disproportionate to the results.' The role of the carrier was now more restricted and vulnerable due to the 'ever increasing range of shore based aircraft.'

The Committee therefore recommended that a further saving of £23 million could be found from the navy of which £15 million was to be found from the Fleet Air Arm. It also recommended that the two fleet carriers should be equipped with aircraft as for a light fleet carrier and used only as convoy escorts. Finally, an investigation into the future strategic role of the FAA was called for with the prospect of a heavy cut in the number of front-line aircraft. In contrast, the Swinton Committee endorsed the planned build-up of V-Bombers in the RAF to 240 by 1958.

To the Admiralty, the Swinton report seemed to have been written 'with a special bias with the object of belittling the Navy's part in a future war.'[149] Its conclusions, the Admiralty argued, were based on fallacious arguments. That the importance of seapower was diminishing, for example, was a 'dangerous half-truth.' As the COS latest strategic assessment made clear, the Soviet Union now had a powerful navy and was building fast. Moreover, the whole NATO concept was predicated on Allied control of sea communications in the Atlantic.[150]

As to the costs of naval aviation, the Fleet Air Arm planned to provide 225 front-line aircraft, capable of reconnaissance, strikes against ship and shore targets, air defence,

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148. Ibid., C (54) 329 'Defence Policy', CAB 129/71; Grove, *Vanguard to Trident*, 111-112. The Committee was chaired by Lord Swinton, the Commonwealth Secretary, and included the Minister of Supply, Sandys, and Nigel Birch, the parliamentary secretary at the Ministry of Defence.
149. Note by Controller to First Lord, 13 August 1954, ADM 205/97.
150. Comments by DAW, 15 September 1954, ADM 205/98.

A/S and ground support, all for an annual cost of £70 million, using smaller and cheaper aircraft than the RAF. Indeed, reducing the fleet carriers to an escort role and only half filling them with aircraft would only save £2 million a year, a sum equivalent to one-eighth of one per cent of the national defence budget or the equivalent of three medium bombers for the RAF.[151]

Finally, carriers and their aircraft were no more vulnerable to nuclear attack than airfields. In fact, their greater strategic and tactical mobility meant carriers may be the only air bases left when land based airfields had been obliterated.

However, the greatest confusion concerned the role of the fleet carrier in war, particularly in the NATO Striking Fleet. Despite the Admiralty's best efforts in October 1953 to define the functions of the fleet carrier, there was still some misapprehension about the role of fleet carriers in war. According to the Admiralty, a number of erroneous assumptions had consequently been made by the Swinton Committee. It was assumed, for example, that the primary purpose of the Striking Fleet was to strike shore targets, and that the main role of the fleet carrier would be to 'rob' Bomber Command of its livelihood.[152] It was also assumed that the navy's requirement for strike aircraft was solely to hit shore targets, a task which could, in fact, be more effectively and economically performed by shore-based aircraft.

In response, the Admiralty argued that it was never intended to use fleet carriers, or provide them with aircraft or weapons primarily for strategic strikes against shore targets; the fact that they could be used as such was purely incidental. While the Americans may be planning to use the Strike Fleet mainly in this role, its fundamental purpose, in the Royal Navy's view, was quite different. The Strike Fleet was in fact an 'umbrella', the naval covering force of the Atlantic area, under which command of the sea was exercised. It was an infinitely flexible force whose role was not confined to

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151. Note by Fifth Sea Lord on Swinton Report (FAA), 10 September 1954, ADM 205/98; Note from VCNS to FSL, 4 November 1954, ADM 205/99.
152. Note from VCNS to FSL, 17 September 1954, ADM 205/98.

attack-at-source and could also be used to protect shipping, support ground forces and provide air defence.[153] The NA 39 Buccaneer was aimed primarily at dealing with ships, in particular Soviet *Sverdlov*'s, while other types of aircraft required for the Strike Fleet would be needed for trade protection. In the final analysis, the role of the two British fleet carriers in NATO was to provide general cover and for the first fifteen days would be the only force available to fulfil this role. More importantly, reducing the fleet carriers to an escort role and withdrawing from the Strike Fleet would also risk losing influence in the formulation of war plans and the conduct of maritime operations in war.

The Admiralty's response to the Swinton Report therefore vigorously resisted the Committee's proposals as 'unrealistic.'[154] Fleet carriers, with a full complement of the right type of aircraft, were essential if Britain was to undertake a role in NATO. The United States were now pressing the Royal Navy to provide three carriers and the least Britain could do was provide two properly complemented. In return, the Admiralty would be willing to make a further cut of £3.5 million over and above the £25 million cut already proposed. These arguments finally won the day, and at the end of November 1954, the new Minister of Defence, Harold Macmillan abandoned plans to review the strategic role of the FAA and the Admiralty were allowed to find the savings called for by scrapping the minesweeper programme.[155]

Although the Admiralty had saved its carriers in the short-term, their long-term strategic future was still not secure. Indeed, little was known of the navy's long-range plans at all and the Admiralty's lack of clear guidance in this matter over the years had resulted, as the First Sea Lord observed, 'in a feeling... that there is silence about this service because there is nothing to say about its future.'[156] Such criticism had only

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153. Admiralty comments on DR (54) 4th Meeting, 14 August 1954; 'The Role of Covering Forces', 19 August 1954; Notes on Swinton Report, 23 August 1954, ADM 205/97.
154. C (54) 332 'Defence Policy: The Fleet Air Arm', 5 November 1954, CAB 129/71.
155. General Sir William Jackson and Field Marshal Lord Bramall, *The Chiefs. The Story of the United Kingdom Chiefs of Staff* (London: Brassey's, 1992), 289.
156. Letter from FSL to Macmillan, 30 November 1954, ADM 205/99.

grown in intensity with the advent of the H-bomb, which cast further doubt on the role of navies generally in a thermonuclear war. As the Chief Scientific Adviser to the COS, Sir Frederick Brundrett, commented:

> there has been a very real revolution in national thinking which has had the effect of making it far more necessary than in the past to persuade people of the reasons for expenditure on various aspects of the Navy and of the relative importance of the Navy's various forms of contribution to the overall national defence system.[157]

As the US Navy had already been compelled to do, the Royal Navy therefore set about securing its role in a nuclear-orientated defence policy.

To demonstrate that the navy did, in fact, have plans for the future, the Admiralty issued 'The Navy of the Future' in March 1954.[158] With advances in the supply and design of atomic weapons, guided missiles, nuclear propulsion and Vertical Take-Off and Lift (VTOL), the Admiralty looked forward to a fleet within the next twenty years composed of ballistic missile ships, both surface and submersible; carriers operating jet reaction aircraft; offensive ASW vessels; ships for controlling convoys' and A/S helicopters and high performance submarines. Attacks on surface forces and submarine bases would be performed by long-range ship-borne missiles and aircraft while the protection of shipping against air attack would rest on VTOL fighters, operating from the smallest possible escort carriers and seaborne anti-aircraft missiles.

Nonetheless, the Royal Navy's role, both in peace and war, would remain as it had always been: 'to use the sea to impose our will upon the enemy, while denying him its use and preventing his interference with our essential sea communications.' The navy would also continue to be responsible for various peacetime and cold war tasks. This enduring faith in traditional sea control duties, even in the thermonuclear era, was

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157. Letter from Brundrett to FSL, 25 February 1954, ADM 205/102. See also the letter from the FSL to the FL, 1 January 1954 and the minute from the FL to the FSL, 21 January 1954, in the same file.
158. 'The Navy of the Future', 2 March 1954, ADM 1/25891.

reiterated in the navy's appreciation of its role in an H-bomb war.[159]

Despite the Soviet Union's ability to deliver 'a devastating blow' against the United Kingdom, destroying all large towns, major ports, industry and airfields and leaving available only those ships and aircraft overseas on the outbreak of war, the war would continue beyond the initial phase. Preserving the United Kingdom's sea supply lines would be vital and it was anticipated that Soviet naval forces would be employed intensively at sea. The immediate task of the Royal Navy would be to seize the initiative at sea by offensive operations to keep open the lines of communication, protect convoys and bring in reinforcements.

While long-established sea control duties therefore remained paramount, the Royal Navy was also seeking to bolster its role in nuclear strike strategy. The Admiralty spent the remainder of this period defending its role - both real and potential - in strategic strike missions. In its appreciation of the navy's role in a thermonuclear war, for example, the Admiralty argued that until longer range rockets were developed, 'the nuclear offensive will be mounted by ballistic rockets...likely to be ship-launched - possibly from submarines.' The navy would thus be able to provide a 'mobile and self-sufficient contribution' to the offensive and deterrent. Moreover, in an H-bomb war it was likely that the Royal Navy's carriers would be 'the only survivors from the initial blitz and the only means of continuing nuclear war *either at sea or land*.'

Nonetheless, the RN was at present severely limited in its offensive power since their ships still lacked an atomic capability. If the navy did not yet have the bombs, their atomic delivery capabilities were greatly enhanced in February 1955 by the addition of the new fleet carrier, HMS *Ark Royal*, to the fleet. Together with *Eagle*, the Royal Navy now possessed two fleet carriers capable of operating all existing and near-term modern aircraft, including Sea Hawks and Skyraiders. After much delay, the NA 39 Buccaneer was also finally ordered in January, eventually joining the fleet in July 1962.

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159. 'The Navy and the Hydrogen Bomb War', 1 October 1954, ADM 205/102.

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By the end of 1955, both the United States Navy and the Royal Navy had reached a new era in their history. In the wake of the strategic reorientation that had taken place in Anglo-American defence policy after 1952, towards an increased reliance on nuclear deterrence and away from building up conventional war-fighting capabilities, both navies had successfully managed to recast and resell their role in national security policy. While the importance of traditional sea control duties, such as convoy protection and denying the enemy use of the sea, were reaffirmed and remained the foremost responsibility of the navy, the role of the navy in strategic strike missions, using both conventional and atomic weapons, was also established as a viable function of modern naval forces. In the face of renewed criticism from those who questioned the need for large navies in the thermonuclear age, the United States Navy and the Royal Navy had both vigorously defended their corner and emerged from the fight with a revitalised role in modern warfare.

This metamorphosis in the fortunes of the navy had not failed to impress contemporaries in the United States. Echoing the sentiments of the Secretary of the Navy a few months earlier, for example, the *Christian Science Monitor* summed up the Navy's successful 'rehabilitation' of its mission over the previous ten years:

> it is time to report that the Navy has staged a considerable comeback - in its wide range of new weapons, its alert use of research and its role in national defense offense. There was a time when strategists were writing off the Navy. The long range bomber had superseded the battleship and carrier. The land based missile would bridge the seas. The Navy would do convoy work alone. But all that talk was before the USN stepped smartly forward with an arsenal of startling new weapons: atomic submarine, guided missile cruiser, Forrestal class carriers and a prospective atomic seaplane.[160]

In Britain, the Royal Navy had also successfully remodelled itself by 1955 into a

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160. 'Nuclear-Age Navy', William Stringer, *Christian Science Monitor*, 19 December 1955, Carrier (need for a Navy) File, Carriers General (2), Theories and Concepts, NAHB.

force capable of meeting a variety of commitments, from peacetime and cold war tasks to the initial nuclear phase and survival period. The diversity of the navy's roles was endorsed in the 1955 Defence White Paper, which called for a navy capable of both seeking out and destroying enemy naval forces, including attack-at-source, and maintaining control of sea communications.

In many respects, therefore, 1955 was also the birthdate of a new Royal Navy. 'What we have tried to do in my time,' commented McGrigor, 'is to grasp the nettle and stop drifting.' He was satisfied that he had done just that:

> in the past two years there has been a bitter struggle going on as to the future of the three services and their role and tasks in these Hydrogen days. At one time it was even suggested that the Navy was not needed, except for a few smaller vessels; that all we had to do was to survive nuclear attack and take no thought for the morrow, and that anyhow the Air Force can do it all. We have won through all that phase, and the Defence White Paper shows very clearly how the Navy is needed in peace and war and how it centres around the aircraft carrier.[161]

161. Letter from FSL to Admiral Sir Martin Dunbar-Nasmith, 2 March 1955, ADM 205/106.

# CHAPTER 7

# RESTORING THE BALANCE: INNOVATIONS IN AIRCRAFT CARRIER DESIGN AND ANGLO-AMERICAN STRATEGIC COOPERATION 1950-1955

*'The aircraft carrier presents the naval constructor with some of the most difficult problems encountered in warship design. On a hull possessing most normal warship features, provision must be made for the operation and maintenance of several squadrons of aircraft. If operated ashore a carriers aircraft would require an airfield extending over several square miles with air control, hangar maintenance shop, petrol stowage, bomb dumps, barrack blocks and messes, transport and runways thousands of feet in length. In the carrier this has to be compacted into a ship about 800 feet long with a flight deck area of less than two acres.'*[1]

It is unlikely that the first generation of British and American aircraft carrier designers would have been able to predict the kinds of challenges that their counterparts in the 1950s would be confronted with. As chapter two noted, developments in naval aircraft design and technology during the first postwar decade progressed very rapidly; so rapidly in fact, that the new aeronautical advances were beginning to outstrip the capacity of existing aircraft carriers to operate the high performance aircraft coming into service (see figures 2.2 and 2.3). The size, weight and speed of naval aircraft, for instance, had increased exponentially during World War II. Both navies were faced with the choice of either building new, larger carriers that they could neither afford nor justify given the large numbers with which they ended the war, or block obsolescence of their carrier fleets. The British and American navies therefore began modernising their carriers, in the way of larger lifts, stronger arrester gear and more powerful catapults, to enable them to operate the next generation of naval aircraft.

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1. J.H.B. Chapman, 'Development of the Aircraft Carrier' (RINA, 1960), quoted in David K. Brown, *A Century of Naval Construction. The History of the Royal Corps of Naval Constructors, 1883-1983* (London: Conway Maritime Press, 1983), 182.

Modernization programmes had been initiated in both Britain and the United States at the end of World War II, but by the early 1950s, the problem of improving the compatibility between aircraft and aircraft carriers had become even more urgent. Both navies were beginning to introduce jet fighter aircraft into service - the USN F9F Panther in 1950 and the Royal Navy Sea Hawk in 1953. The introduction of even larger and heavier, nuclear-capable, jets was also looming on the horizon. In September 1949 the first deliveries of the 52,862 lb AJ-1 Savage nuclear strike aircraft were made to the US Navy, while the requirement for a 60,000 lb twin-engine attack bomber (eventually the A3D Skywarrior) had been issued in March 1949. In Britain, the specification for a low-level nuclear strike aircraft, the NA 39 Buccaneer, eventually weighing 62,000 lb fully loaded, was issued in June 1952.

All of these aircraft were at the forefront of both the US and Royal navies ambition to play a new and vital role in strategic strike missions, using both conventional and nuclear weapons. However, the operational demands posed by these aircraft were quickly forcing the carriers even closer to their maximum physical and technical capacity. In the first place, jet aircraft required a longer take-off and landing area to accommodate their higher speed. Second, their lack of engine power at take-off necessitated more powerful catapults to compensate for the lack of deck run, while heavier arrester gear were needed for decelerating. Finally, the higher landing speed gave the pilot less time to respond to signals from the carrier's Landing Signal Officer (LSO), making crash landings into the safety barrier still more hazardous.

The serious operating deficiencies experienced by carriers as a result of the transition from reciprocating engines to modern jet types were amply demonstrated during the Korean War, and made even more urgent as a result. The difficulty in operating jets from the fleet carriers of the US Seventh Fleet on the east coast of Korea were well documented by the Department of the Navy and reinforced the calls made by both navies for greater launching capacity and new landing techniques, to achieve a

'satisfactory matching of future aircraft to the aircraft carriers.'[2]

During the postwar period, therefore, it is clear that the relationship between the development of the aircraft carrier and naval aircraft was a symbiotic one. On the one hand, the size and design of the carrier imposed restrictions on the types of plane that could be operated from it. On the other hand, the requirement to operate faster, heavier aircraft forced the carrier to adapt and modify. The development of carrier aviation during the 1950s was thus largely determined by the necessity to carry and operate jet-engine aircraft and the need to improve the ability of carriers to handle jet aircraft.

Restoring the balance between the carriers and their aircraft was the most pressing problem faced by aircraft carrier designers during the 1950s. The pressure to develop new technologies and techniques was arguably greater in Britain, where none of the Royal Navy's carriers were yet able to operate jets, than it was for the United States Navy, whose *Essex* and *Midway* class carriers were at least able to operate jets, albeit inefficiently. It is perhaps of little surprise therefore that some of the major innovations in postwar carrier aviation - the steam catapult, the angled deck and mirror landing sight - were developed by British carrier designers during this period.

The carrier innovations developed during this period were not only significant for their influence on the future of aircraft carrier design and development. For the Royal Navy, they were also a means of achieving even closer strategic cooperation with the United States Navy. As previous chapters have demonstrated, Britain's national strategy at this time was progressively being harmonised and integrated with that of the United States and the Admiralty were also keen to establish a more thorough integration of the two countries naval programmes. With the expectation that the USN would be providing much of the additional hardware that the Royal Navy would need in a future war and that the two navies would have to operate aircraft from each others ships, consonance in

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2. 'Annual Report of the Chief of the Bureau of Aeronautics to the Secretary of the Navy, Fiscal Year 1952', 16 December 1952, RG 72, Records of the Bureau of Aeronautics, Annual Reports 1942-1956, Box 2. See also 'Korean War. Commander in Chief US Pacific Fleet Interim Evaluation 25 June-15 November 1950', RG 428, General Records of the Department of the Navy, Box 1213.

technical and research and development programmes was considered imperative. Perhaps more significantly, the Royal Navy also lacked the necessary resources to fully exploit any advances it made in these fields and it was frequently argued in British naval circles that the fusion of the two navies programmes would be invaluable in providing much needed financial assistance.

Nonetheless, Despite the harmonious relationship that had evolved between the two navies since the dnd of the war, Anglo-American naval cooperation at the beginning of the 1950s was far from perfect or complete. Although the conclusion of the Burns-Templer Agreement in February 1950 had officially sanctioned the exchange of classified military information between Britain and the United States, the Admiralty soon found that the promised 'full and frank interchange' of information was not as absolute as they would have liked.[3] The US Navy Department had some reservations about the degree of interchange that should be effected. The Bureau of Aeronautics (BuAer) was considered by the British to be particularly obdurate in conforming to the spirit of the agreement. As the Director of Technical Services (Air) at the British Joint Services Mission in Washington complained:

> ...it is hard to escape the view that in some regions there is a deliberate restrictive policy. One such field is the Bureau of Aeronautics....Here, every device is being employed to prevent wide disclosure of information on aeronautical matters to the British. Efforts are made to stop our visitors going to Naval factories and stations and if they succeed in going the contractors are instructed privately to show them little or nothing of the advanced work in progress. Reports and documents, if released at all, are only released after many months...In fact, taking the picture as a whole, it is obviously <u>not</u> the intention of BuAer that there should be a full and frank disclosure of information to the British over the general field of Naval aviation...[4]

The problem, as such, was made clear during the visit of Vice-Admiral Sir Michael

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3. COS (50) 80, 'Exchange of Classified Military Information Between the United States and the United Kingdom', 16 February 1950, DEFE 9/15.
4. Telegram from BJSM to Minister of Defence on Exchange of Information, 24 December 1951 and 'A Note on the Interchange of Classified Military Information Between the USA and UK as viewed by D.T.S. (Air)', 17 December 1951, DEFE 7/291.

Denny, the Controller of the Royal Navy, to the United States in early 1951.[5] As far as the fusion of research and development programmes was concerned, the USN made it clear that it had sufficient resources to cover all the major fields by itself and were unwilling to risk depending on the Royal Navy in any matter. Indeed, Denny professed to be 'staggered to see at first hand the vast extent of American resources and the spendthrift lavishness of the facilities provided', admitting that he 'was of course most envious of all this.'

But the Americans lack of enthusiasm for cooperating more closely with the Royal Navy also lay in their perception of their own capabilities in research and development. 'It is of course an article of faith with the Americans', wrote Denny, 'that all good equipments were conceived, nurtured and brought forth in the United States. British work ...is ignored.' Indeed, the head of the British Naval Staff in Washington, Admiral Sir Douglas Pennant, also found cause to complain that:

> in the material fields we have also had the impression that, while they appreciated our efforts and abilities, anything in the way of standardisation must be to the American pattern and there was an automatic prejudice in many quarters against anything "not made here."[6]

The carrier innovations developed by the Royal Navy during the early 1950s were therefore considered to be an important means of demonstrating to the United States that the British did, in fact, have something significant and worthwhile to contribute to modern naval warfare; moreover, it was in the best interests of *both* countries to work together in close strategic cooperation. As Vice Admiral Denny concluded, 'I am sure that many Americans realise in their hearts that both countries would benefit from well organised fusion and though we have received a setback I do not doubt that we shall be

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5. 'Report of the Visit of Vice-Admiral Sir Michael Denny, Controller of the Navy, to Canada and the United States of America, April-May 1951', 18 May 1951, DEFE 9/21. The remainder of this paragraph is based on this source.
6. Letter from BNS Washington, No. 700/52 to FSL, 26 May 1952, ADM 1/23841.

able eventually to pursue the matter to a satisfactory conclusion.'[7] Indeed, as this chapter shows, the steam catapult, the angled deck and the mirror landing aid, were important innovations not only for restoring the balance between the carrier and its aircraft, but also as a means towards restoring the balance in the Anglo-American naval relationship.

## I. The Flexible Deck

Although the flexible, or 'rubber', deck was one British innovation that was never implemented in British or American carriers, it is still an interesting example of the extent to which the Admiralty needed the active financial and moral support of the United States Navy if it was to fully exploit new design innovations; to develop ideas all the way from the drawing board to the aircraft carrier.

The origins of the flexible deck are to be found in 1944, in discussions between the Admiralty and Ministry of Supply on the possibilities of dispensing with the undercarriages in future aircraft. It was becoming increasingly apparent by the end of the war that the greater weight and size of the next generation of naval aircraft would impose a number of penalties on the aircraft compared to their land-based counterparts, including an undercarriage that was twice as heavy, larger accelerating gear and provisions for rocket assisted take-off.[8] It was suggested that these penalties could be removed if the undercarriage of an aircraft could be completely eliminated. The saving in weight, space and complexity could be made to increase the speed, rate of climb or endurance in future aircraft; an increase in endurance of twenty-five per cent, or forty-five minutes, was anticipated for naval fighters. For the first time, the flexible deck

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7. Ibid.
8. 'The Flexible Deck - Further Considerations Affecting DNDP's Analysis' (n.d., n.a.), Ministry of Supply Files [AVIA] 54/1968.

offered the possibility of the carrier aircraft being superior in performance to land-based aircraft. It was also possible that the removal of the undercarriage would be an essential feature of supersonic aircraft. The thinness of their wings would make it extremely difficult to retract an undercarriage and because of their high stalling speed, a conventional deck landing technique could be unsuitable for this type of aircraft.[9]

If the undercarriage was to be dispensed with, however, the shock of the landing would have to be absorbed by the deck rather than by the aircraft itself. The solution was to build a flexible landing deck, essentially a series of inflatable air bags or cushions made of neoprene supporting an upper flat surface, the whole system standing approximately eighteen inches above the flight deck (figure 7.1).[10] In 1948, trials of undercarriageless aircraft landings were begun, both ashore at the Royal Aircraft Establishment (RAE) in Farnborough, and afloat on HMS *Warrior* at Portsmouth, which demonstrated that the 'belly landing' technique was indeed practicable.

The potentially revolutionary effect of the flexible deck on the future design of aircraft carriers was not lost on the Admiralty, where debate on what type of carrier should be used for undercarriageless aircraft was keen. The argument centred on two different questions: first, should a new carrier, of a completely new design, be built to take full advantage of the new method, or should an existing carrier be converted for the purpose; second, should the carrier be a hybrid carrier, capable of operating both wheeled and wheel-less aircraft or should it be a specialised carrier for undercarriageless aircraft only.[11]

On the first question, it was decided that financial and policy considerations ruled

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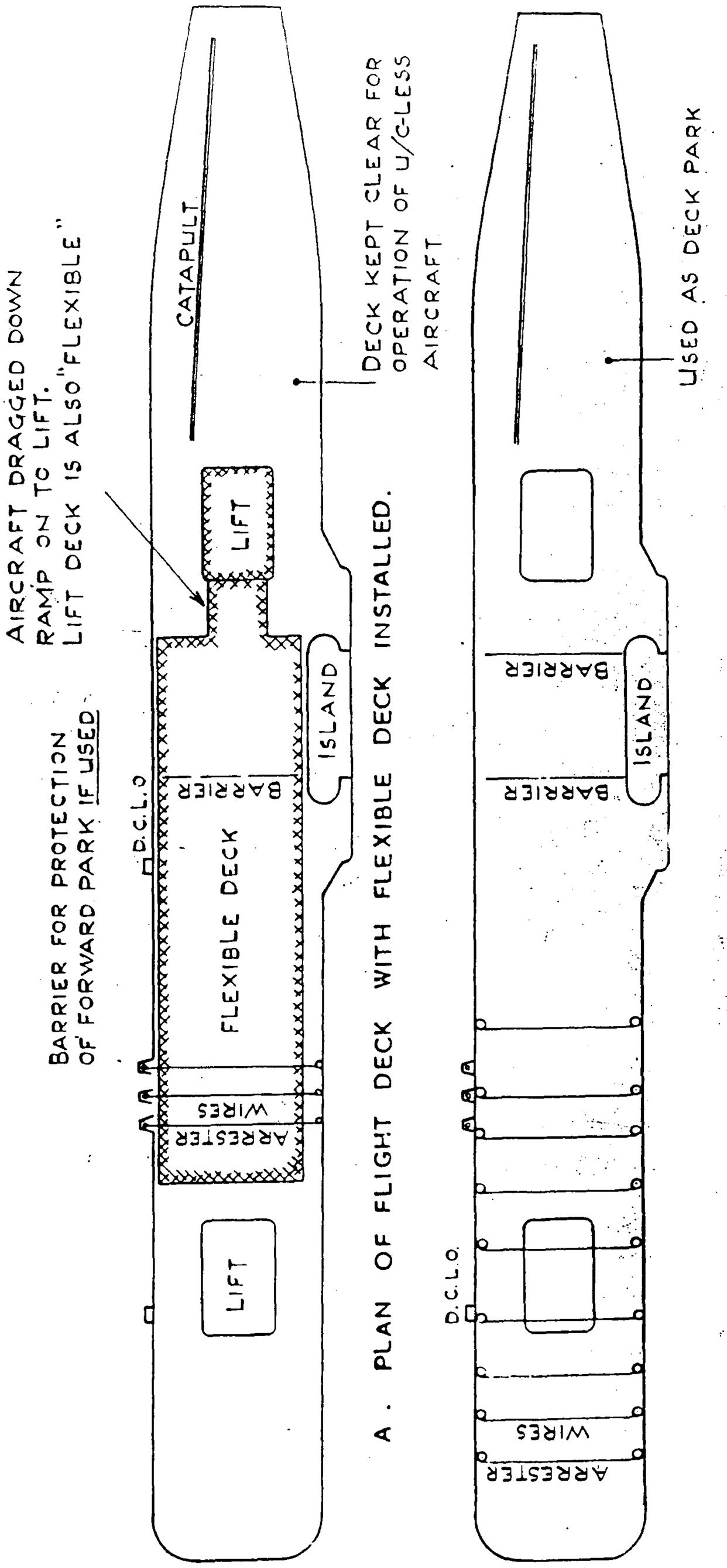
9. 'Case for Undercarriageless Aircraft - an Appreciation by DAW of the situation as at 25 May 1950', ADM 1/2175.
10. Naval Construction Department. Research and Development Headquarters Progress Report, July 1946, ADM 281/126.
11. 'Report of the Royal Aircraft Establishment on phases of Flexible Deck Trials so far Conducted', 16 June 1949 and minute by Director of Naval Construction, Sir Charles S. Lillicrap, 15 June 1950, ADM 1/21715.

*Fig. 7.1. Layout of Flexible Deck*




Source: Technical Memorandum No. N.A.D. 14 'Effects on Layout and Design of the Future Carrier Operating Undercarriageless Aircraft'. January 1949, ADM 1/21715.

out the idea of designing a completely new carrier.[12] On the second, it was concluded that the Royal Navy would never require a specialised carrier. A carrier intended to operate only undercarriageless fighters would not be able to fulfil either the trade protection or Carrier Task Force role for which the carriers were required and the change-over to undercarriageless aircraft would take several years.[13] Accordingly, a Staff Target was issued for a hybrid carrier with a deck covering, inflatable and deflatable in three minutes, enabling either type of aircraft to land. Meanwhile, four Sea Vampires would be converted to undercarriageless for further trials on the handling problems associated with the flexible deck and the whole project was given an Admiralty 'Importance Factor' of nine out of ten.[14]

While some at the Admiralty complained that progress on the flexible deck was proceeding too slowly and that it lacked higher priority or financial support, others held deep reservations about the project.[15] In particular, there were worries about the possible loss of standardisation with other services, especially the United States Navy, something that the Admiralty had been striving to achieve since 1945. There was no guarantee that other air forces would follow Britain's lead and adopt the flexible deck if the scheme was successful; indeed, it would be 'most imprudent to bank on this happening.'[16] If the Royal Navy did find itself alone in the project, the implications would be serious, especially in war. With the USN, the Royal Navy's aircraft would not be able to land on their carriers or airfields. In a war, at least fifty per cent of the RN's aircraft would have to obtained from the USA and these would all be conventional types that could not be operated without drastic modification. The navy would not be able to use the Royal Air Force airfields either. Thus, concluded Captain D.R.F. Cambell, the Director of Naval

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12. Minute by DNC, 11 February 1950, ADM 1/21735.
13. 'Progress Report for the DRPC. 'Progress of Naval Aviation'', May 1952, ADM 1/23203.
14. Minute by Board, 17 November 1950, ADM 1/21715.
15. Note by Vice Controller (Air), 19 January 1950, ADM 1/21715.
16. Paper by DAW, DTSD, DAOT and D of P, 'The Implications of the Introduction of Undercarriageless Aircraft and the Flexible Deck Carrier', 27 July 1951, ADM 1/21715.

Aircraft Development and Production, 'the greatest gain [of adopting the flexible deck project] would be matched with the worst aspects of non-standardisation.'[17]

Indeed, there was as yet no concrete support from the United States Navy for the scheme. Although they were interested in the development, they preferred to watch it from the side-lines. For Rear Admiral Alfred Pride, the Chief of the Bureau of Aeronautics, the real obstacle lay in the change-over from conventional carriers and airfields and the severe deck and shore handling difficulties involved on a straight deck carrier.[18] Following the introduction of the angled deck concept, however, the USN's interest in the flexible deck was aroused. This innovation will be examined in greater detail later on in this chapter, but its real contribution to the flexible deck scheme was its alleviation of the problem of clearing the flight deck between landings. Rather than having to drag the aircraft the full length of the landing area, the angled deck now allowed aircraft to be dragged to the side of the deck, reducing the interval time between landings.[19]

A US Navy Department Board was therefore established to reevaluate the possibility of developing a flexible deck programme in the United States. A navy representative was sent to RAE, Farnborough, to examine British progress in the field, resulting in a recommendation that a similar programme be started in the United States in collaboration with the Royal Navy.[20] $35 million was set aside for the project, covering the manufacture and installation of a British-type flexible deck at the Naval Air Station in Patuxent; the purchase of a second deck for installation in a carrier if the trials warranted it; the study and development of handling equipment; and the modification of

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17. 'The Flexible Deck - DNDP's Analysis', July? 1951, ADM 1/21715.
18. 'Report of the Visit of Vice Admiral Sir Michael Denny, Controller of the Navy, to Canada and the United States of America, April-May 1951', 18 May 1951, DEFE 9/21.
19. 'New Concepts in Carrier Deck Design', May 1953, Office of Naval Intelligence, Carriers General/Aviation File, NAHB.
20. 'Annual Report of the Chief of the Bureau of Aeronautics to the Secretary of the Navy, Fiscal Year 1952', 16 December 1952, RG 72, Annual Reports 1942-1956, Box 2.

two F9F Panther aircraft for flexible deck operation.[21]

Between 1953 and 1954, a series of conferences were held between representatives from BuAer and the British Admiralty and the Ministry of Supply to establish the collaborative project. Both the USN and RN were well aware that they must be able to operate their aircraft from the ships of both navies and so collaborating together in the matter of the flexible deck would be crucial. For the British Admiralty in particular, the American interest was vital. The size of the Royal Navy's active fleet was now much smaller than it was when the flexible deck scheme was first considered for operational use, and the Admiralty could now no longer afford to duplicate its carriers. They were therefore quite happy for the United States Navy to bear practically the whole cost of the flexible deck development, while still being able to take part in all the trials.[22]

Nonetheless, the flexible deck trials held in the United States during early 1955 were ultimately a failure. Although the landing problems had apparently been solved with the advent of the angled deck concept, that fact remained that the flexible deck was simply not suitable for handling the conventional, propeller-driven Anti-Submarine Warfare and Airborne Early Warning aircraft operated by the USN.[23] American interest in the flexible deck waned even further as the potential of Vertical Take-Off and Lift (VTOL) for future naval aircraft became more apparent. The notion of using the thrust of jet engines to augment the lift of aircraft wings, thereby reducing the take-off and landing speeds of the new aircraft, had been in consideration since the mid-1940s, but it was only in the early 1950s that the power of jet engines had increased sufficiently for the idea to be regarded as practicable. If VTOL fighters could be developed, it was not thought that they would gain significantly from having no undercarriages. Moreover, the

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21. Letter from Captain Edward Walthall, RN, Staff Officer (Air), BJSM to D.R.F Cambell, 1 October 1952, AVIA 54/1968; Minutes of 72nd Meeting of Naval Aircraft Research Committee. Aeronautical Research Council, 17 February 1953, ADM 1/21715.
22. Minutes of 72nd Meeting of Naval Aircraft Research Committee. Aeronautical Research Council, 17 February 1953, ADM 1/21715.
23. Friedman, *British Carrier Aviation*, 334.

whole shape and size of the carrier's flight deck would be revolutionized and it was even possible that the carriers role in the fleet might become less vital with vertical lift aircraft able to be carried in many different types of ships. In any event, both the Royal Navy and the United States Navy were now beginning to question whether it would be wise to embark on the flexible deck programme without an estimate of when the first militarily acceptable VTOL fighter could be expected to be in service.[24]

Although some at the British Admiralty urged that work on the flexible deck project should continue apace, and that the two projects were complementary and not competitive, it was clear that the USN's interest was being increasingly diverted towards the prospects of vertical take-off and lift aircraft.[25] By 1954, the USN already had two vertical take-off aircraft projects at the flight test stage with the imminent possibility of a contract being placed for a military aircraft. In Britain, jet engines designed specifically for vertical lift did not yet exist and the earliest they could be expected was the 1960s.[26]

The promise of VTOL and the resulting decline in American interest and enthusiasm for the flexible deck project sounded the final death knell for the project in Britain as well. Given the Royal Navy's dependence on the USN for assistance, both financially during peacetime, and materially during wartime, the Admiralty would not be able to consider using the flexible deck unless the United States Navy did so. Accordingly, in 1956, the decision was taken to cancel all further research into the flexible deck, while conversely the vertical lift project was accorded higher research and defence priority.[27]

The story of the flexible deck project between 1945 and 1956 highlights a salient point about Anglo-American strategic cooperation in the naval sphere during the early

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24. Note by Chief Naval Representative, Ministry of Supply, 'Flexible Deck versus Vertical Lift', 5 February 1953, AVIA 54/1968; D.R.P/P (53) 24, 'Jet Reaction Lift and its Application to Military Aviation', memorandum by Defence Research Policy Committee, 14 May 1953, DEFE 10/32.
25. See the minute by L. Boddington from the Royal Aircraft Establishment, 7 April 1953, AVIA 54/1968 and minute by the DNC, 16 June 1954, ADM 1/21715.
26. D.R.P./P (54) 8, 'Jet Reaction Lift - note by Ministry of Supply', 18 March 1954 and D.R.P./P (54) 46, 'The Main Problems Thrown Up by Recent Issues of the BJSM (Technical Services) Newsletters', 28 December 1954, DEFE 10/33.
27. Minute by DAW, 13 November 1956, ADM 1/21715.

postwar period. For a new technology or technique to become standardised and adopted into service by *both* the Royal and United States navies, two conditions had to be met. First, given the limitations on British resources during this period, any new technical innovations developed by the Royal Navy more often than not depended upon the financial support of the United States Navy in order to be fully exploited or adopted. Second, and perhaps more importantly, this support was only likely to be forthcoming if these innovations also enjoyed the moral support of the USN; in other words, if the Americans were sufficiently confident in the enduring utility of a new technique or technology to become its long-term benefactor. If the shelf-life of a new innovation appeared so short that it threatened to pass quickly into obsolescence, then it was unlikely that the USN would consider supporting such a project.

If neither financial nor moral support were forthcoming from the USN, it was extremely unlikely that any new innovation developed by the British would be successful. In the case of the flexible deck, American financial support was available for a time, but the USN's confidence in the flexible deck was not sufficiently strong enough to ensure their continued moral support. It is clear, therefore, as Friedman has already noted, that the USN were the main obstacle to the final adoption of the flexible deck.[28] The remainder of this chapter will examine three other British innovations that were successfully adopted into service by both the Royal and United States navies. In each of these cases, the Royal Navy enjoyed either the financial or moral support of the USN, and often a combination of both.

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28. Friedman, British Carrier Aviation, 334.

## II. The Steam Catapult

Catapults were first introduced in aircraft carriers during the 1930s, allowing the length of deck the aircraft needed for take-off to be considerably reduced. By the end of World War II, catapulting had become the normal method for launching a large deck-load strike, particularly after the introduction of heavier, higher performance aircraft made a 'free take-off' from the deck impracticable.[29]

With the introduction of even heavier, jet-engine aircraft, however, it was obvious that the hydraulic catapults currently in use would be unable to launch the next generation of aircraft. Hydraulic catapults were capable of launching aircraft up to 20,000 lbs weight at a speed of sixty-six knots, but jet aircraft had less engine power at lower speeds, such as during take-off. Turning the carrier into the wind alleviated the problem to a certain extent, but meant that the carrier had to alter course or lose station.[30] The existing BH5 catapults in British carriers and the H2 and H4 catapults in American carriers would therefore not be able to catapult future jet aircraft, such as the Royal Navy's Attacker, Sea Hawk, Scimitar or Sea Vixen, unless rocket boosters were provided under their wings. Trials had already shown, however, that if one rocket failed to ignite, aircraft had a tendency to swing round at the crucial moment.[31]

By the end of the war, therefore, a new steam driven catapult had been designed and developed. Invented and patented before the war by Commander C.C. Mitchell, a former officer in the Royal Navy, the steam catapult was intended to launch 30,000 lb aircraft at 105 knots, or even heavier aircraft at slightly lower speeds. The rapid development of the steam catapult was considered essential, not only to expedite development work on the

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29. Hobbs, *Aircraft Carriers*, 17.
30. 'Progress Report for the D.R.P.C. 'Progress of Naval Aviation'', May 1952, ADM 1/23203.
31. Minute by DAW, 13 February 1950, ADM 1/21736; Peter Kemp (ed.), *History of the Royal Navy* (London: Arthur Barker Ltd., 1969), 291.

next generation of aircraft, but also to install them in the new carriers then being built.[32] In late 1949, a prototype steam catapult was fitted in HMS *Perseus*, and trials were conducted off Rosyth and at Belfast. In April 1950, following a review of defence research and development policy, the steam catapult was given a top 'priority rating' of ten and plans were made to fit the catapult in *Eagle*, *Albion*, *Centaur* and *Hermes* upon their completion. It was also decided to delay the completion date of *Bulwark* and *Ark Royal* to allow for the installation of one and two steam catapults respectively, while modernization of the two fleet carriers, *Victorious* and *Implacable*, was also to include steam catapults.[33]

The serious operating difficulties experienced in the change-over to jet aircraft had also resulted in a catapult improvement programme in the United States. Although the new H8 catapult currently under development offered almost twice the launching capacity of the H4, it was still inadequate for handling the new types of aircraft. A slotted cylinder powder catapult - the C10 - which used gunpowder as its chief propulsion source and had three times the capacity of the H8, therefore began development.[34] However, this was also proving to be unsatisfactory. The C10 required a much longer brake stroke, with potentially serious repercussions on new carrier designs. Using gunpowder was also very expensive and there was the additional problem of how to store the thousands of charges that would be needed. As Admiral James S. Russell, the Chief of BuAer in 1955, later described the problem: '...if you had a powder charge to expend every time you launched an airplane, you'd soon sink the ship carrying

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32. D.R.P. (48) 114, 'Submarines, A/A & A/D Frigates & Steam Catapults for H.M. Ships: Need for Priority', 9 August 1948, DEFE 10/22. Building at this time (1948) were the fleet carriers *Eagle* and *Ark Royal* and the light fleet carriers *Centaur*, *Albion*, *Bulwark* and *Hermes*.
33. Minute by DAW, 13 February 1950; Minute by DNC, 23 February 1950 and Fourth Meeting of the Naval Aviation Material Policy Committee, 23 May 1950, ADM 1/21736.
34. 'Annual Report of the Chief of the Bureau of Aeronautics to the Secretary of the Navy, Fiscal Year 1950', 6 September 1950 and 'Fiscal Year 1951', 4 October 1951, RG 72, Annual Reports 1942-1956, Box 2.

powder charges...something had to be done.'[35]

The United States Navy therefore began to look more closely at the catapult development work that was going on in Britain; 'to steal sidelong glances' at the steam catapult.[36] Trials of the steam catapult on *Perseus* during June 1951 had been witnessed by two USN officers, and another two USN pilots had also taken part in the tests, launching Sea Fury, Firefly and Sturgeon aircraft. During these trials, the British Admiralty had offered to send *Perseus* to the United States so catapult operations with US naval aircraft could be conducted. Admiral Apollo Soucek, the US Naval Attaché in London, urged that the offer be accepted, arguing that the steam catapult had 'great possibilities.'[37]

Both the Royal Navy and the United States Navy recognised that they stood to benefit enormously from such a visit and the exchange of information would provide dividends for both navies. For the Royal Navy, who so far had only had the opportunity to test aircraft weighing between 9,000 to 15,600 lbs, the exchange would allow the catapult to be tested to its fullest, using heavier aircraft than any the RN presently had in service. Tests with USN jet aircraft would also allow more experience of operating these types to be gained.[38]

More importantly, the visit of *Perseus* would be 'something positive in the cooperative effort and in animating USN/RN standardisation.'[39] Anglo-American cooperation in naval aviation was an important target for the British Admiralty, and could only benefit from *Perseus*'s visit. As C. Abel-Smith, the Vice-Controller (Air), argued:

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35. Quoted in Wooldridge, *Into the Jet Age*, 57.
36. 'Report of the Visit of Vice-Admiral Sir Michael Denny, Controller of the Navy, to Canada and the United States of America, April/May 1951', 18 May 1951, DEFE 9/21.
37. Memorandum from US Naval Attaché London, 'Trials of Prototype Steam Catapult in HMS *Perseus*', 27 July 1951, RG 72, Ships Installation Division [S.I.D.], Catapults, Box 1.
38. Minute by Vice Admiral D.C. Maxwell, Engineer-in-Chief [E-in-C], 3 September 1951, ADM 116/5844.
39. Note by E-in-C, 11 January 1951, ADM 116/5844.

> ...the USN, because of their mentality and their very large fleet, believes, perhaps rightly on the whole, that we make a small contribution to the advance of naval aviation. This colours their inclination to impart information and cooperate generally. A common approach for us to any problem is to ask what the USN is doing about it: the idea of asking what the RN is doing seldom enters into their heads. When, therefore, we have something of real value, which we have good reason to think is much better than anything they have and in which we know already the USN is very interested, we should, I think, show it off to the widest possible American naval audience.[40]

Finally, the Royal Navy stood to gain not only directly, but also indirectly as well. It was considered likely that the RN would probably need even more financial assistance from the United States Navy in the future than they had in the past, so the sooner they could 'offer the fruits of Perseus's work', the better.[41]

For the United States Navy, *Perseus*'s visit to the US would enable the latest naval aircraft - in particular, the F3D Sky Knight - to be tested at acceleration loads well above those any existing US catapult could provide. For both navies, the tests would provide a practical trial of the stage so far reached in the process of standardisation where USN carriers would be able to operate British naval aircraft, and the RN carriers would be able to operate American naval aircraft.[42]

Accordingly, HMS *Perseus* was sent to the United States for tests between December 1951 and March 1952, where the latest USN aircraft, including the F9F Panther, F2H Banshee and F3D Sky Knight, were embarked.[43] The visit was considered to be a great success by the Admiralty. The steam catapult had been demonstrated to be superior to the catapult being developed by the United States Navy, and additional tests, operating the catapult at a higher steam pressure than usual, showed that it could be adapted to the higher pressures of American ships without any loss of

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40. Minute by Vice-Controller (Air), 27 March 1951, ADM 116/5844.
41. Minute by Captain K.A. Short, DAOT, 8 October 1951, ADM 116/5844.
42. Minute by E-in-C, 11 January 1951, ADM 116/5844.
43. For a full report on the US tests, see 'Report of Proceedings - HMS *Perseus*, 29 December 1951 to 21 March 1952', ADM 116/5844.

ship power.[44]

While some US Navy officers were initially sceptical about the practicability of the steam catapult, and continued to believe that the C10 powder catapult would eventually be superior to the steam catapult,[45] the majority of opinion in the United States Navy concluded that the British catapult was 'an object of very definite interest, one which we cannot afford to regard any longer as merely a back-up to our own programme.' The feasibility of employing the steam catapult in the USN's carriers should therefore be examined.[46] In the final analysis, it was a case of 'a bird in the hand is worth two in the bush': while the American catapult was not yet even in production, the British catapult had already been firing for a couple of years.

In June 1952, therefore, the installation of steam catapults in American carriers was assigned a high priority by the Secretary of the Navy, Francis P. Matthews, and approved for the tenth and subsequent conversions of the *Essex* class carriers and for the new fleet carrier currently being built, USS *Forrestal*.[47] Five British catapults together with the manufacturing rights to produce the steam catapult in the United States were bought, with plans to procure another eight. However, until the steam catapult was fitted on all ships, the USN would continue the development of the C10, including its conversion to steam. Ironically, it was now this programme, the American powder catapult, that was considered to be the back-up to the British steam catapult programme.[48]

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44. Board Minute 4569, 3 April, 1952, ADM 167/140; Memorandum from DCNO (Air), 'Extension of visit of HMS *Perseus* to USA to permit additional catapult tests', 21 February 1952, RG 72, S.I.D., Catapults, Box 1.
45. See, for example, the memorandum by Captain Sheldon Brown of the Ships Installation Branch, 'Brief Comparison of British and American Slotted Cylinder Catapults', 8 January 1952, RG 72, S.I.D., Catapults, Box 1.
46. Unsigned, undated memorandum, 'Progress Report on the *Perseus* Programme', RG 72, S.I.D., Catapults, Box 1.
47. Memorandum by Secretary of the Navy, 'Catapult Procurement for US Aircraft Carriers', 19 June 1952, RG 19, Records of Bureau of Ships, Unclassified Central Correspondence, 1952, Box 358.
48. 'Annual Report of the Chief of Bureau of Aeronautics to the Secretary of the Navy, Fiscal Year 1952', 16 December 1952, RG 72, Annual Reports 1942-1956, Box 2.

The first steam catapult was installed aboard an American carrier, USS *Hancock*, in February 1954 and tested with A4D Skyraider, F2H-3 Banshee, FJ-2 Fury, F7U-3 Cutlass and F3D Sky Knight aircraft, while high speed launching tests to determine the practicability of launching the Regulus I guided missile from a steam catapult were conducted the following year.[49]

The success of the British steam catapult can be interpreted on a number of different levels. In the first instance, it was clearly an idea that worked well in practice. Using steam as the propulsion source for catapults was the most obvious solution to the problem of launching the jet aircraft that were coming into service in both navies. Not only was it cheaper and more simple than using gunpowder as the main charge, but it was also much more practical given the design limitations imposed on carriers. In fact, the slotted cylinder powder catapult developed by the United States Navy was never installed on its carriers.

Second, the United States Navy's confidence in, and adoption of, the steam catapult, not only encouraged greater Anglo-American naval cooperation in general, but also enhanced the significance of the Royal Navy within that relationship in particular. The trend toward increased Anglo-American naval cooperation was noted by Admiral Sir Douglas Pennant, the head of the British Naval Staff in Washington.[50] While previous efforts to achieve standardisation in the material field had frequently met with American prejudice to 'anything "not made here",' the trend was now in the other direction and was largely due to the Royal Navy's 'better pieces of postwar equipment' appearing appreciably in advance of their American counterparts. 'Perhaps the chief reason for this welcome return to something like the old close association', Pennant suggested, 'is the

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49. Office of the Chief of Naval Operations, *The Steam Catapult. Its History and Operation*, (Washington: US Navy, 1957), 27-29; 'Classified Annex to Parts I, II & III of the Annual Report from the Chief of Bureau of Aeronautics to the Secretary of the Navy, Fiscal Year 1955', 23 April 1957, RG 72, Annual Reports 1942-1956, Box 2.
50. Letter from British Naval Staff to Admiral Sir Rhoderick McGrigor, 26 May 1952, ADM 1/23841. The following two paragraphs are based on this source.

recognition of the fact that we really often do have something good to offer and that the American product is not necessarily the best.'

The success of the steam catapult gave the Admiralty a new sense of boldness in its relationship with the United States Navy. Rather than be 'completely open handed and [offer] our best, with no strings attached, hoping...this policy would bring its own reward', it was now suggested that the Admiralty could bargain for certain information:

> It may savour rather of blackmail to us but...the Americans would look at it from a business point of view and would respect us accordingly, Fundamentally, all Americans have the business instinct...They certainly never expect to get something for nothing.

Although the British steam catapult clearly received the moral support of the United States Navy, the Admiralty risked overlooking the fact they still required the financial support of the Americans if they were to develop such carrier innovations to the fullest degree possible. Although the steam catapult was considered to be a great success by both navies, it was still in need of improvement - to reduce its steam consumption and weight for example.

However, financial restrictions meant that the Royal Navy were compelled to seek assistance from the United States under the American Mutual Weapons Development Programme if the catapult was to be developed to meet even higher aircraft operating requirements.[51] This situation was not unique to the history of the development of the steam catapult; it was also true of the other major carrier innovation developed by the British during the early 1950s: the angled deck.

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51. See the minute by E-in-C, October 1955, ADM 1/27359.

## III. The Angled Deck

The introduction of heavier and faster jet aircraft into service during the early 1950s also created handling problems on the flight deck of an aircraft carrier; in particular, the difficulty of safely landing and taking-off at such high speeds. These higher performance aircraft made it necessary to increase the run out of the arrester wires and the launching stroke of catapults, but there had not been any corresponding increase in the length of the flight deck. With jet aircraft landing further up the deck than their slower predecessors, there was little or no room for a safety zone with the result that the number of crashes into the safety barrier had increased. The barrier had therefore been moved further and further forward, with the consequence that the size of the forward deck park, and thus the numbers of aircraft that could be operated, had been reduced. Moreover, parking in front of the crash barrier had become increasingly dangerous. The streamline structure of jet aircraft meant that if it hit the barrier, it sometimes went right through, crashing into the aircraft parked ahead.[52]

It had become clear that a new deck operating method was needed, one that would not interfere with or restrict the various functions that took place on the flight deck. Several ideas had been suggested, including using two decks, the upper for landing and the lower for taking-off, or building the deck in the shape of a 'Z', one arm for landing and the other for taking-off. However, both suggestions would involve radically redesigning the carrier and were considered too drastic a solution.[53] The answer was inadvertently discovered during experiments with the flexible deck in the summer of 1951. Unable to design a barrier that would be sufficient for the higher entry speeds of jets, the Royal Aircraft Establishment had refocused their attention on the deck layout of carriers to see if an aircraft could be operated without using barriers, while at the same

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52. Wooldridge, *Into the Jet Age*, 56.
53. Paper by the Naval Aircraft Department, RAE, 'The Skew Deck Layout for Carrier Flight Decks', October 1951, ADM 1/22421.

time preserving the deck park. The solution was the angled deck.[54]

By angling the flight deck up to eight degrees to the port of the carrier's centre line, leaving a wedge shaped area forward for taking-off and the deck park, it was possible to do away with the barrier altogether. If an aircraft missed the arrester wires when landing, the pilot could simply take-off and fly around again. With a separate landing and take-off area, the simultaneous launch and recovery of aircraft would also be possible. With the deck park forward and to the starboard of the landing area, it would not be in the way and could be greatly increased in size, thereby increasing the operating capacity of the carrier.

In February 1952 trials of the angled deck concept were conducted to assess the practicability of the new layout. The deck of HMS *Triumph*, recently returned from the Korean War, was painted to simulate a seven degree angled deck (figure 7.2). The trials, using Royal Navy Attacker, Sea Meteor and Firefly aircraft, were a great success, proving that landing on an angled deck was quite feasible from the pilots point of view.[55]

The next step, urged by the Director of Naval Air Warfare, Captain C.L.G. Evans, would be to fit a carrier with an angled deck.[56] Given Britain's economic situation, however, it was uncertain whether the Admiralty would be able to find the financial or material resources needed. In 1952, Britain's import bill stood at £540 million, while the export of goods, hampered by a steel shortage, had been disappointing. With a balance of payments crisis looming, the new Conservative Government had set about increasing engineering exports by raising production in the 'metal using industries', as well as increasing investment in the plants and machinery needed to increase export capacity. As a result, cuts in the defence programme were necessary to release the materials and manpower needed for exports. The Admiralty's requirements for 1952-53, for example,

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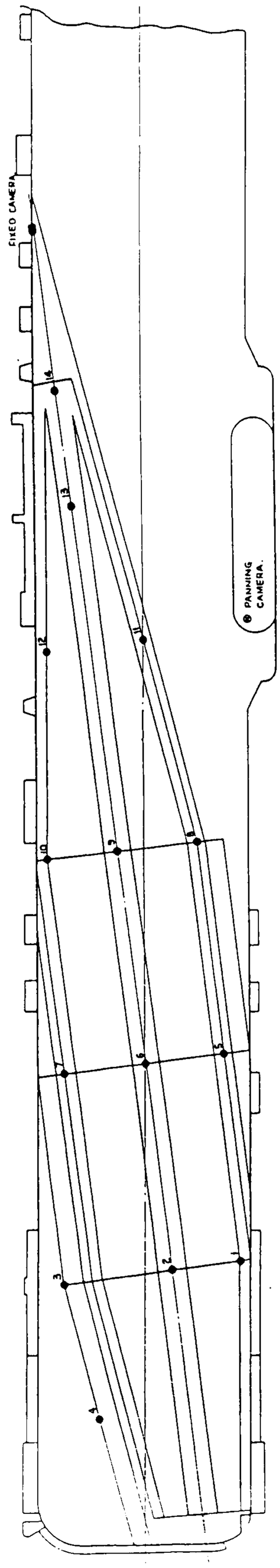
54. Letter from L. Boddington to the Director of RAE, J.L. Bartlett, 28 August 1951, AVIA 54/1968.
55. 'Angled Deck Trials, HMS *Triumph*, 12-13 February 1952', March 1952, ADM 1/22421.
56. Minute by DAW, 23 April 1952, ADM 1/22421.

*Fig. 7.2. HMS Triumph, Simulated Angled Deck 7°*




Source: Technical Note No. N.A. 242, 'Angled Deck Trials, HMS Triumph, 12-13 February 1952', March 1952, AVIA 6/24593.

had been reduced from £402 million to £330 million, causing delays in the new construction and modernization programme.[57] The question of when the Royal Navy would be able to fit an angled deck and complete trials of the new carrier operating technique was therefore very much open to question. However, by this time the early success of the Royal Navy's angled deck programme was rapidly being emulated and taken over by the United States Navy.

In America, the Navy Board had also become very interested in the angled deck concept.[58] American efforts to solve the problem of landing heavier and faster aircraft and reduce the incidence of barrier crashes had culminated in the addition of a barricade to back-up the barriers and protect aircraft on the forward end of the flight deck. However, with their more streamlined shape the wire barricade often decapitated the pilot as the jet crash-landed. Other solutions considered included a carrier with a very wide flight deck split into two parallel parts, one runway being used for landing and the other for launching.

The angled deck concept, however, offered a way to avoid such a large and expensive design, and general enthusiasm for the British innovation encouraged the Bureau of Aeronautics to conduct similar trials as the Royal Navy.[59] In May 1952, therefore, both jet and propeller type aircraft were tested on a simulated angled deck aboard USS *Midway* and USS *Wasp* at the Naval Air Test Center in Maryland. The tests were so successful that it was recommended that a real angled deck be installed on a carrier for further testing, and in December 1952, USS *Antietam*, an *Essex*-class carrier

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57. Grove, *Vanguard to Trident*, 79.
58. The Americans also referred to the angled deck as a 'canted deck' or 'skewed deck' Since the angled deck neither tilted nor slanted, these terms were often confusing and in February 1955, the CNO, Admiral Donald Duncan, officially named the concept the angled deck.
59. Memorandum by Captain Sheldon Brown, Director, S.I.D., BuAer, 'Canted Deck Concept for Aircraft Carriers', 21 May 1952, Carriers General/Aviation File, NAHB.

commissioned in 1945, was completed with an eight degree angled deck (figure 7.3).[60]

The *Antietam* trials, which began in January 1953, were broadly welcomed by the Royal Navy. Installing an angled deck on a British carrier was still only at the planning stage, and it was hoped that the American tests would save the RN the time and, more importantly, the expense, of carrying out similar trials of its own. The Royal Navy initially hoped to send two Sea Furies and two Attackers with their pilots to participate in the trials, but it was later decided that such small scale participation would be an embarrassment to the United States Navy.[61]

The *Antietam* trials were a great success. A number of different aircraft were used, including the experimental XFJ-2 Fury, Cougars, Panthers, Banshees, Corsairs and Skyraiders, demonstrating that the angled deck was a far superior method for the recovery of aircraft than the axial deck.[62] Landing intervals as low as twelve seconds were achieved. Landing on the angled deck was also considerably safer than landing on a straight deck carrier. As one pilot described the experience:

> ...landing a jet airplane on an angled deck was sheer bliss...most of the apprehension at the cut [of the engine] for a straight deck no longer existed with an angled one. With no barriers to hit, or possible crash into the pack, two of the tailhooker's deepest fears were banished forever.[63]

The results of the *Antietam* trials were watched with great interest by the British Admiralty in London. In the interests of standardisation, it requested that USS *Antietam* be sent to Britain to demonstrate the angled deck and have the Royal Navy participate in

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60. 'Power-On and Simulated Canted Deck Carrier Landing Tests - Report, Naval Air Test Center, Patuxent River, Maryland. Conducted for Bureau of Aeronautics', [n.a., n.d.], AVIA 54/1675; Hal Buell, 'The Angled Deck Concept - Saviour of the Tailhook Navy', *The Hook*, vol. 15, no. 3 (Fall 1987), 15.
61. Letter from J.E. Makin to J. Macpherson, 12 January 1953, AVIA 54/1675.
62. 'Trials of USS *Antietam* - report from BJSM', 27 January 1953, ADM 1/24536; 'Monthly Report of Canted Deck Evaluation Number 2, period 1 February to 6 March 1953' report by Commanding Officer, USS *Antietam*, 12 March 1953, AVIA 54/1675.
63. Buell, 'Angled Deck Concept', 19.

*Fig. 7.3 Angled Decks on USS Midway and USS Antietam*

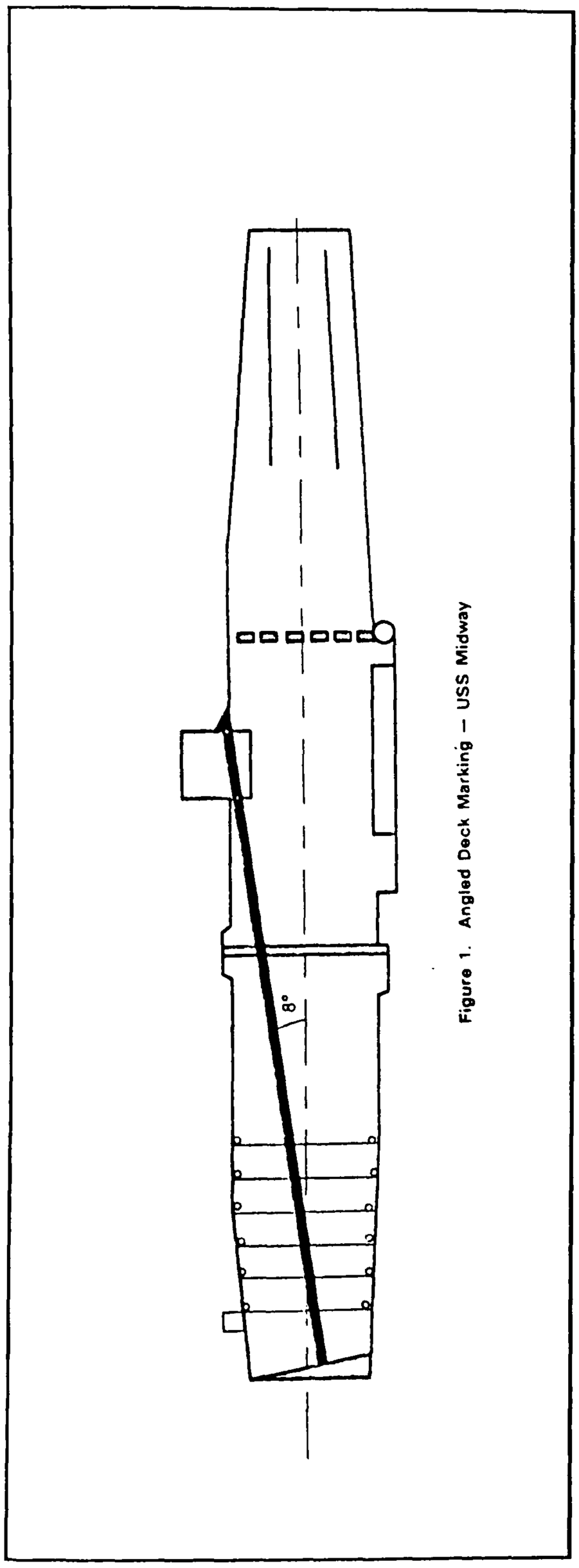


Figure 1. Angled Deck Marking — USS Midway

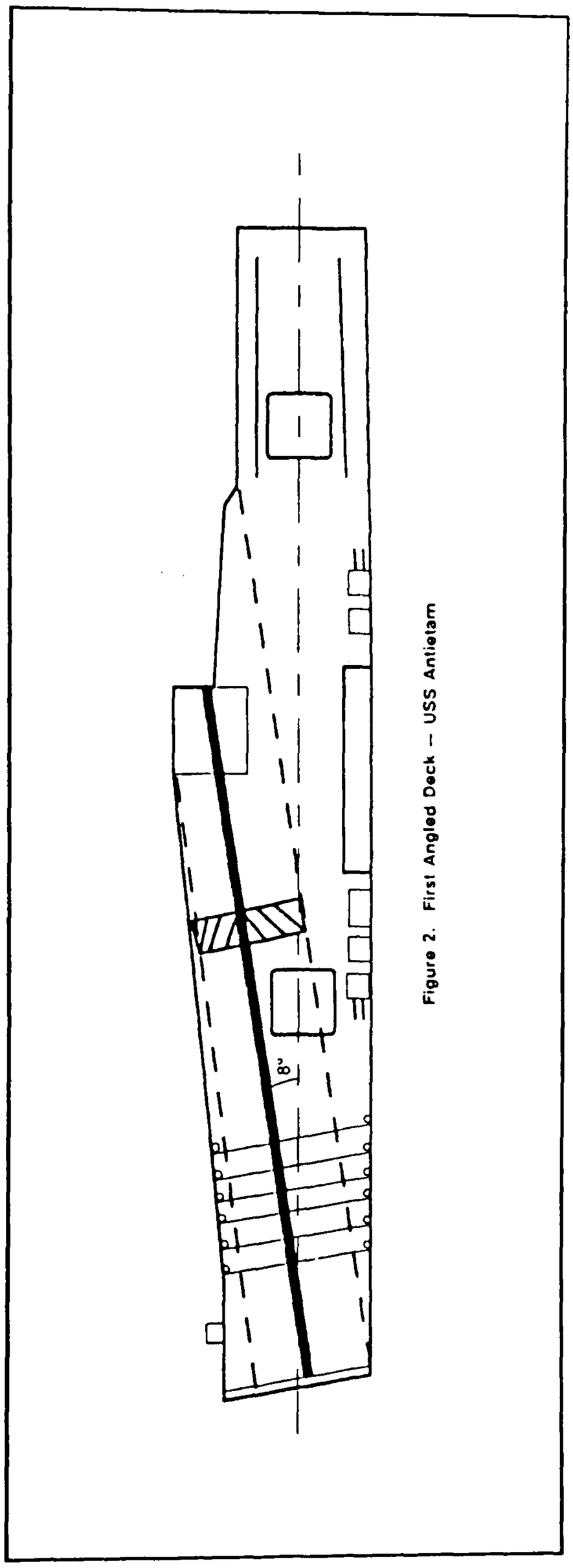


Figure 2. First Angled Deck — USS Antietam

Source: Hal Buell, 'The Angled Deck Concept - Saviour of the Tailhook Navy', *The Hook*, vol. 15, no.3 (Fall 1987), 16.

flying operations from the deck.[64] The trials, which took place off Portsmouth in June 1953, confirmed the results of the earlier tests. Operating Sea Hawks, Attackers and Wyverns, the RN pilots experienced no difficulties in landing on the angled deck, and during all the *Antietam* tests between January and June 1953, there were only eight minor accidents out of a total of 4,107 landings.[65]

The success of the angled deck trials in the United States and Britain during 1953 encouraged both navies to bring the concept rapidly into service. In Britain, construction of the fleet carrier, *Ark Royal*, and the light fleet carrier, *Bulwark*, were delayed to fit an interim five degree angled deck, while construction of the light fleet carrier, *Hermes*, and modernization of the fleet carrier, *Victorious*, were to include a fully angled deck.[66] The Carrier Construction and Modernization Committee also proposed that, if the new aircraft planned to enter service during the next few years, including the Gannet, Wyvern, Sea Hawk, Scimitar and Sea Vixen, were to be safely and efficiently operated, then the light fleet carriers *Centaur*, *Albion* and *Warrior,* and the fleet carrier, *Eagle*, should be fitted with interim angled decks during their next biennial refit.[67]

In the United States, the design of the new fleet carrier, USS *Forrestal*, was changed to include an angled deck, while the carrier conversions planned under Project 27C were also modified to include an angled deck.[68] In September 1953, a new programme,

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64. 'Classified Annex to Part IV of the Annual Management Report from the Chief of Bureau of Aeronautics to the Secretary of the Navy, Fiscal Year 1953', 28 May 1954, RG 72, Annual Reports 1942-1956, Box 2.
65. 'The Canted Flight Deck. Antietam Trials Demonstrate Flexibility, Speedier Operations. Advantages of New Deck Type', *BuShips Journal,* vol. II, no. 8 (December 1953), Carriers General/Aviation File, NAHB.
66. Board Minute 4689, 9 July 1953, Paper B846, 24 June, 1953, and Paper B849, 7 July 1953, ADM 167/143.
67. Paper B851, C.C.M.C.(P)(53) 1, 'Fitting of Angled Decks and Radar Type 984/CDS/DPT in Entire Carrier Fleet', 13 July 1953, ADM 167/146.
68. The carriers included in this project (all *Essex* class carrier) were *Lexington*, *Shangri La*, *Bon Homme Richard*, *Hancock*, *Intrepid* and *Ticonderoga*.

Project 110, was initiated to give angled decks to all three *Midway* class carriers.[69]

The story of the development of the angled deck is remarkably similar to that of the development of the steam catapult. While the concept of the angled deck quickly earned the confidence of the United States Navy, the Royal Navy still depended upon American financial support if it was to be rapidly and fully exploited. Although the Royal Navy's development and early tests of the angled deck were a great success, proceeding to the next stage, and actually installing an angled deck on board a carrier, would have severely stretched the material and financial resources of the Royal Navy. Having successfully 'sold' the idea to the United States, the angled deck then required American capital if it was to be developed to its fullest potential.

## IV. The Mirror Landing Sight

Unlike the steam catapult, or angled deck, the mirror landing sight did not depend upon the financial or moral support of the United States Navy for its ultimate success. Although it was welcomed by the USN, who later improved it, the mirror landing sight was a simple and relatively cheap innovation that the Royal Navy were able to develop and put into practice without American assistance. Nonetheless, its significance stems not only from the contribution it made to the future operation of aircraft from carriers, but also as an example of the extent to which the Royal and United States navies had come together, in terms of technical and operating procedure, and for the contribution it made to restoring the balance in the Anglo-American naval relationship.

Visual landing aids had first been introduced on board British and American aircraft carriers during the 1930s. The adoption of arrester wires and barriers meant that pilots were no longer able to make a free landing on the carrier, and instead needed to be

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69. Scot MacDonald, *Evolution of Aircraft Carriers*, (Washington: US Government Printing Office, 1964), 66-67.

guided into position by a Landing Signal Officer (LSO) or 'batsman.' Using hand-held bats, the LSO would signal to the pilot when they were high or low, right or left, and when they needed to 'cut' the throttle or go around again for another attempt.[70]

However, with the introduction of jet aircraft the shortcomings of the LSO as an aid to the pilot was clear. With modern aircraft overtaking the carrier at speeds in the order of 100 knots, the higher approach speed of jets meant that the LSO's perception of errors and reaction time were inadequate to deal with any problems in the landing. As Captain A.S Bolt, the new Director of Naval Air Warfare, described the problem:

> The [LSO] has to appreciate a fault in the approach and signal it to the pilot; the pilot has to interpret it and apply the appropriate corrective action. By the time the corrective action takes effect, as often as not the [LSO's] original appreciation is out of date.[71]

The potential for disaster was obvious, as was the need to give the pilot, rather than the batsman, the direct means of detecting faults in his approach. The solution, suggested by a Royal Navy Officer, Commander H.C.N. Goodhart, was the mirror landing sight.

The mirror landing sight was a large curved mirror, mounted on a gyro-stabilised platform on the port side in the middle of the carrier. A bank of green lights either side of the mirror provided a datum. A line of amber landing, or 'source', lights were located far aft on the port side of the deck and shielded from the pilots direct view. These amber lights were reflected aft by the mirror until they appeared as one elongated spot. When landing, the pilot had to keep the spot of reflected light in line with the green datum line. If the aircraft climbed above the correct flight path, the spot appeared to go high; if the aircraft got too low, the spot appeared too low.[72]

Various trials of the mirror landing sight were conducted aboard HMS *Illustrious* and HMS *Indomitable* between October 1952 and November 1953. The technique for

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70. Hobbs, *Aircraft Carriers*, 18.
71. Minute by DAW, 17 October 1952, ADM 1/23256.
72. Ibid.

landing high speed aircraft was found to be 'extremely satisfactory', with an obvious application to the angled deck where the absence of a safety barrier made it possible to leave the engine power on until arresting.[73] A Staff Requirement for a mirror landing sight was therefore issued and three sets were ordered; the first to be fitted in HMS *Albion* in 1954 and the other two in HMS *Eagle* during 1955.[74]

By this time, the United States Navy was also becoming very interested in the new landing device developed by the British. US Navy exchange pilots who had participated in the evaluation of the mirror landing sight aboard *Illustrious* had highly praised the new landing aid. Furthermore, USN F9F Cougar aircraft, taking part in joint naval exercises with British carriers in the Mediterranean during January 1955 had made perfect landings on board *Albion* using the mirror, despite never having seen it before.[75] The United States Navy therefore requested that two models be sent to the US for testing.[76]

In August 1955, a British mirror landing aid was installed on board USS *Bennington*.[77] Over 900 landings were made using the mirror, with pilots reporting no difficulty in the transition from a constant altitude type of approach normally used by American carriers, to a 'slope line' with the mirror. Moreover, the advantages of an angled deck carrier employing the mirror landing sight compared to other carriers not so configured were apparent, particularly during darkness or bad weather, while the mirror landings of the AJ-1 Savage, capable of carrying nuclear weapons, demonstrated that the mirror would 'prove a particular boon' to the larger types of carrier aircraft. The fleet

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73. Ibid.; memorandum by Director of RAE, 'Trials with mirror landing aid', 16 December 1953, ADM 1/25316.
74. Minutes of 78th Meeting of Naval Aircraft Research Committee. Air Research Council, 27 April 1954, ADM 1/21715.
75. Report by Flag Officer Aircraft Carriers, 'Exercises with the United States Sixth Fleet', 10 May 1955, ADM 1/26081.
76. 'Optical Landing Aid', *Naval Aviation News* (June 1954), 38.
77. 'Evaluation of New Features Incorporated in USS Bennington', 30 September 1955 and 'Evaluation of New Features Incorporated in USS Bennington - second report', 19 March 1956, RG 72, S.I.D., Catapults, Box 3.

carriers in both the British and American fleets were rapidly converted to enable use of the mirror. Having previously adopted an American deck landing technique in 1949, the Royal Navy was now responsible for the USN's adoption of a British landing practice.[78]

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It has now become something of a truism to state that the carrier innovations designed and developed by the Royal Navy during the early 1950s were a major breakthrough in solving the problems faced by both the British and American navies in operating the new generation of naval aircraft that were beginning to come into service. Numerous studies have already pointed out that the steam catapult, the angled deck and the mirror landing sight were vital discoveries in improving the ability of aircraft carriers to handle jet-engine aircraft. This is not to minimize the importance of these innovations in restoring the balance between the carrier and its aircraft. Indeed, it can be argued that the development of the steam catapult, angled deck and mirror landing sight revitalised the feasibility of the carrier, giving naval aviation a new striking potential and flexibility at a time when its contribution to modern warfare, particularly vis-à-vis land-based aircraft, was increasingly being called into question. For the first time since World War II, a new era of carrier aviation was on the threshold.

What is less frequently noted, however, is the important effect these innovations had on Anglo-American strategic cooperation in general, and on Anglo-American naval relations in particular. In practical terms, the adoption of the steam catapult, angled deck and mirror landing sight ensured that both navies would be able to operate aircraft from each others carriers; an aspect of standardisation that would be particularly vital during wartime. In psychological terms, the impact was even greater. The British innovations

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78. See footnote 142 in chapter four.

played a crucial role in effecting a change in the United States Navy's attitude towards the Royal Navy and the contribution it could make to modern naval warfare. Although several agreements between Britain and America had been signed to encourage the exchange of technical and research and development information, in reality, the Royal Navy often found that the information only flowed one way. In general, and almost as a matter of policy, the United States Navy did not believe that any other navy could come even close to their capabilities in the scientific, technical and research fields. As a result, the Royal Navy often found itself excluded from much of the important development work taking place and made to feel like the poor relation: tolerated but not taken seriously.

The success of the British innovations had a dramatic and startling effect on the American attitude towards the Royal Navy, and consequently the nature of Anglo-American naval relations. The steam catapult, angled deck and mirror landing sight were not only timely, but also much more advanced than anything under development by the United States Navy. They encouraged the USN to begin working much more closely with the Royal Navy in research and development and to invest more heavily in British innovations. More importantly, they helped to establish a new spirit of cooperation between the two navies. As Vice-Admiral Cecil Hughes-Hallet, the head of the British Naval Staff in Washington, commented in early 1954:

> Royal Navy-United States Navy relations have, I believe, never been better and are improving all the time...The American Navy has shown a desire to sweep away differences that may have arisen...[79]

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79. Letter to First Sea Lord, 1 February 1954, ADM 205/102.

# CONCLUSION

The focus of this thesis has been on two key themes in the history of western strategy between 1945-1955. First and foremost has been an examination of the development of carrier aviation as the central element in the British and American naval contribution to national and allied strategic defence. In charting and explaining this progression, a number of significant factors have been highlighted and singled out for analysis: foreign policy and diplomacy; bureaucracy; economics; technology; and operational experience. Together these factors made up the strategic environment in which the British and American navies operated during the first postwar decade; they were the primary determinants of strategic policy and, as such, they provide the general context for this study.

A major contention of this thesis has been that navies represent just one component of national military strategy and thus cannot be understood in isolation from the *whole* strategic environment of which they are a part. Many naval histories have failed to recognize the eclectic nature of naval policy and strategy-making and consequently the holistic approach that needs to be pursued in its study. As the naval historians David Rosenberg and Jon Sumida have commented in relation to twentieth century naval historiography, 'historians of naval strategy often build their study of their subject on a foreign policy and diplomacy foundation', whereas 'much of what shaped the character of twentieth century navies...hinged on matters related to machines, men, manufacturing, management and money.'[1]

Nonetheless, a cautionary note should be appended to this critique of modern naval historiography. In the enthusiasm to 'do naval history' better there is a real danger that the pendulum may in fact swing towards another extreme; that is, neglecting foreign

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1. David Rosenberg, 'Realities of Formulating Modern Naval Strategy', in Goldrick & Hattendorf (eds.) *Mahan is not Enough*, 145; Jon Sumida & David Rosenberg, 'Machines, Men, Manufacturing, Management and Money', in Hattendorf (ed.), *Doing Naval History*, 25.

policy and diplomatic issues in the study of naval policy and strategy-making altogether. However, if naval history is to reach out to other branches of history and academic disciplines - such as International, Political and Economic history or Strategic Studies and International Relations - then it is vital that naval history is both cognizant of and also informs the broader picture. This thesis has consequently sought to avoid presenting a skewed version of events by focusing on a wide-range of factors that affected the development of carrier aviation, Anglo-American strategic cooperation and defence planning generally between 1945-1955.

The second theme underlying this thesis - Anglo-American strategic cooperation, primarily in the naval sphere - is initially less apparent. Largely this is because the subject matter - the nature and dynamics of the Anglo-American naval relationship - is innate and intangible. In fact, this theme has emerged almost by chance, as a result of the methodology that has been adopted. By employing a comparative approach and directly relating the experiences of the Royal Navy with those of the United States Navy, and vice versa, the salient features and characteristics of the Anglo-American defence relationship have emerged as a corollary theme.

What this thesis makes clear is that Anglo-American strategic cooperation existed anterior to, and simultaneously with, all other treaty commitments during this period. Moreover, in an era when the ability of the western powers to fight in Eurasia depended increasingly on their ability to gain and maintain control of the seas, it has also demonstrated that the existence of a strong, stable naval relationship was crucial for effective strategic cooperation to take place. However, the dynamics and operation of this naval relationship - and its significance to the broader Anglo-American postwar relationship - has largely been overlooked by historians of the so-called Anglo-American 'Special Relationship.' Many historians have tended to focus on Britain and America's relationship in fields such as foreign affairs or economics, or subsumed discussion of it into broader analyses of the international alliances and organisations - such as NATO or the UN - that were established during this period.

The dominance of Britain and America within the NATO alliance notwithstanding, this study has focused primarily on the nature of the relationship enjoyed *exclusively* by the Royal and United States navies, rather than on the character of the international maritime alliance established under NATO or Britain and America's relationship with other treaty signatories.

The remainder of this chapter synthesizes what has been discussed in the preceding chapters into a coherent whole; blending together the key elements and conclusions of each chapter and highlighting what has been discovered and learned; firstly about role of carrier aviation in western strategy between 1945-1955; and secondly, the nature of Anglo-American strategic cooperation in the naval sphere during the early postwar years.

## I. The Role of Carrier Aviation in Western Strategy, 1945-1955

### *The Strategic Environment*

The starting point for this thesis, and indeed, its first and most fundamental conclusion, is that for a true understanding of the development of British and American carrier aviation between 1945-1955, a wide-range of strategic factors needs to be taken into consideration. In particular, foreign policy, economics, bureaucracy, operational experience and technological development were all key ingredients of the postwar strategic environment which stimulated and contributed to the development of carrier aviation as a major element in western strategy.

It can be argued (and indeed many studies have adopted this approach) that each factor individually had a profound influence on the evolution of carrier aviation in both Britain and America. Chapter seven for example, highlighted the problem of improving the technical and operational compatibility between carriers and their aircraft, which

inspired some of the most remarkable innovations in the history of aircraft carrier design, including the angled deck, the steam catapult and the mirror landing aid. Similarly, chapter five highlighted how operational experience gained during the Korean War stimulated, *inter alia*, major changes in naval aviation doctrine and aircraft design. In Britain, for example, the Royal Navy's experience of fighting in Korea led to an emphasis on strike aircraft in the Fleet Air Arm capable of carrying a larger bomb load. In the United States, encounters between USN naval aircraft and Soviet-built MIG's in Korea stimulated the development of even higher performance jet aircraft, such as the F4D Skyray and the F11F Grumman Tiger.

These individual milestones in the history of carrier aviation are important, but they have often served to distract the attention of historians from the broader picture. A study which focused purely on the technological development of carrier aviation during this period, for example, would fail to appreciate the financial dimension of that development, and vice versa. Similarly, a purely operational history of carrier aviation at this time would do little to further our understanding of the effect of bureaucracy on naval decision-making.

Yet this is what many studies of the history of carrier aviation in Britain and America during this period have done. To fully appreciate the development of carrier aviation in western strategy between 1945-1955, therefore, the general conclusion is that the *whole* of the strategic environment is greater than the sum of any of its parts; anything less and the resulting study would represent a distorted history of the role of carrier aviation in western strategy at this time.

***Interplay Between Strategic Factors***

Having established this key point, a second conclusion becomes possible: the interaction of these different strategic factors was crucial in determining the direction in which Anglo-American carrier aviation developed during the early postwar period. The

extent to which foreign policy and diplomacy, economics, bureaucracy and operational experience influenced and reacted against each other often proved critical in informing the size, shape, strategic orientation and operation of the British and American carrier forces. A good example of the interplay between the different strategic factors and the effect this had on the development of carrier aviation in western strategy, is provided by the origins of Anglo-American joint defence planning after 1945.

Before 1948 British and American cooperation in defence planning was minimal. At the end of the Second World War, the Combined Chiefs of Staff Committee had gradually ceased functioning. Although collaboration between the British and American defence establishments did continue - unofficially and through other means - the early defence plans of both countries reflected old, pre-war assumptions that each country would need to provide defence and resist aggression alone.

The Royal Navy, for example, was determined that its strength must be on an absolute basis and not related to that of the United States.[2] The first statement of American strategic requirements in 1945 also called for the armed forces to be prepared to maintain security without assistance from other nations.[3] Both Britain and the United States therefore envisaged providing for their postwar security alone, ready to meet any contingency by themselves and playing much the same roles and missions, and in the same theatres of operation, as they had done in the prewar era.

By 1948, however, the strategic realities of the postwar period had become clearer. The identification of the Soviet Union as the only potential future enemy meant that the Eurasian landmass would be the most likely arena for conflict while postwar economic contraction and fiscal retrenchment challenged the ability of both navies to provide a fleet large enough to fight unaided or to meet their anticipated commitments in a future

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2. See for example 'A Balanced Postwar Fleet', April 1945, ADM 205/53 and DO (46) 97 'Size of the Navy', 26 July 1946, CAB 131/3.
3. JCS 1518 'Strategic Concept and Plan for the Employment of United States Armed Forces', 19 September 1945, Chief of Naval Operations Secretariat, JCS File, OAB.

war.

What both countries now needed - even during peacetime - were allies, to share the defence burden. This concept was gradually accepted by the politico-defence establishments in Britain and America after 1948 and informed not only the joint war plans which were formulated by Anglo-American defence planners but also the establishment of the NATO alliance in 1949. Indeed, for the remainder of this period (and beyond), Britain and America became each other's most important postwar ally and 'principal partner in strategic planning.'[4]

***The Economic Factor***

The crucial point to note is that both Britain and the United States were forced to recognize that there were now many more factors to consider in planning for postwar defence than heretofore. Having recognised this, a further conclusion can be drawn. In essence, the basic framework for postwar defence planning was now economic - not past, traditional responsibilities. In an age of fiscal retrenchment, the hard truth was that defence could no longer be planned on a purely national basis or on the premise of fighting future enemies alone.

This realization - firstly that defence planning now depended on a much wider array of factors than before, and secondly, that financial considerations were now a major determinant of the strategic environment - also had a fundamental effect on the development of carrier aviation in western strategy:

<u>Offensive versus Defensive?</u>

In the first place, economic realities influenced each navy's perception of its - and

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4. JCS 2128 'Essential Elements of US-UK Relations', 3 May 1950, File 092, sec. 1, RG 218/Geographic File/1951-53, Box 20.

the other's - likely role in a future war. While strategic considerations and assessments of where and how the navy could most effectively contribute to the West's defeat of the Soviet Union were paramount in deciding the role carrier aviation should play in a future war, the critical deciding factor was often not what the carriers *should* do, but, more significantly, what they *could* do. Just as economic considerations had forced Britain and America to recognize the need to integrate their defence plans, so too did they largely determine the role the carrier fleets of both navies could play in a future war. Thus, while Britain and America's assessment of the most likely future enemy was the same, their response - in terms of fleet strategy - was not always analogous.

In Britain, for example, where economic pressures were a more constant and exacting feature of the strategic environment during this period compared to the United States, the Royal Navy was forced to concede in 1948 that the role of their carriers in a future war would be primarily defensive. With just 169 front-line aircraft (including thirty-six strike aircraft) and four active carriers, the protection of convoys and providing air cover in support of the army was considered more imperative than other more offensive tasks such as attacking enemy naval bases or coastal shipping.[5] Moreover, there was uncertainty over the ability of the navy's existing fleet carriers to operate the new high performance aircraft beginning to enter service. This was compounded by an overall lack of resources - financial, industrial and manpower - which prevented the Royal Navy from simply building 'bigger and better' carriers to allow then to undertake offensive missions.

Doctrinal tradition, reinforced by recent experiences in World War II, placed great emphasis on the need to protect convoys and was a significant factor in the Royal Navy's decision to focus its efforts on convoy protection. Nonetheless, it was largely a question of what the Royal Navy *could* do, rather than what they should, that ultimately compelled the Admiralty to accept a defensive role for their carriers in war. It was not

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5. See for example 'The Roles of the Navy in War', 20 July 1948, ADM 205/69.

until February 1955, with the addition of the long-awaited new fleet carrier HMS *Ark Royal* to the fleet, that the Royal Navy was able to seriously contemplate a change in its strategic focus. Together with HMS *Eagle* - refitted with a 5.5 degree angled deck and mirror landing aid in 1954-55 - the navy now had two fleet carriers capable of operating all existing and near-term modern aircraft.

This capability was augmented in 1958 when the extensively remodernised fleet carrier, *Victorious*, rejoined the fleet. In addition to traditional sea control duties such as protecting shipping, supporting ground forces and providing air defence, more offensive missions, including strikes against land targets, could now be envisioned. With the ordering of the nuclear-capable NA 39 Buccaneer strike aircraft in 1955, the Royal Navy could also look forward to a potential role in future strategic strike missions using nuclear weapons.

The United States Navy, in contrast, was able to contemplate an offensive role for itself at a much earlier stage than the Royal Navy. By 1948, the USN's inventory included over 1,100 front-line aircraft and a fleet of twenty active carriers, including seven *Essex*-class fleet carriers and three *Midway*-class fleet carriers which were capable of operating - albeit not with complete efficiency - the latest generation of naval aircraft, including jets. With its greater resources and stronger financial position, the emphasis of the USN's maritime strategy which had begun to take shape after 1946 was on forward, offensive operations. These included attack-at-source missions against Soviet ports, naval bases, airfields, factories and shipyards, initially using conventional weapons but with the potential to launch atomic bombs if necessary.[6]



The influential effect of economics on the postwar strategic environment also had an

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6. See for example, Admiral Sherman's briefings to the President, 14 January 1947, no. 26, box 8, Sherman Papers, OAB.

important effect on the technical development of Anglo-American carrier aviation during this period. The weakness of the British economy vis-a-vis that of the United States during this period, for example, coupled with the financial restrictions that this imposed on the British navy helps to explain why it was the Royal Navy, rather the USN, that was responsible for some of the most fundamental and important innovations in aircraft carrier design that were developed between 1945-1955. It has already been noted that in 1945 the United States Navy had the capability to operate the new generation of naval aircraft that were beginning to enter service. In addition to the *Essex* and *Midway*-class carriers, the USN also had in commission by 1955 an entirely new class of aircraft carrier, the USS *Forrestal*, capable of operating high-performance nuclear strike aircraft, such as the AJ-1 Savage. By 1959, another three *Forrestal*-class carriers had been added to the USN's inventory.[7]

The Royal Navy, on the other hand, was constrained for most of this decade by a lack of financial resources and saw its plans for a revitalized carrier fleet, capable of operating the next generation of naval aircraft, repeatedly stymied by the economic crises and defence cuts that characterised this period. In 1945, two *Ark Royal*-class fleet carriers and the three new *Malta*-class fleet carriers were cancelled. As a result, the next generation of naval aircraft designed to operate from the *Malta* and *Ark Royal*-class carriers were now too heavy to be operated from the Royal Navy's existing fleet carriers (*Illustrious* and *Implacable*) without extensive modernization (see figure 2.2). In 1953, the Admiralty's plans for a new 53,000 ton fleet carrier, capable of operating aircraft up to 60,000lbs, including long-range nuclear strike aircraft, was also abandoned for financial reasons. In fact, only one new carrier - the light fleet carrier *Bulwark* - was laid down at all during this period (in May 1945) and the only 'new' ship joining the fleet was the much delayed *Ark Royal* fleet carrier in 1955, a survivor from the 1943 construction programme.

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7. The other *Forrestal*-class carriers were USS *Saratoga*, commissioned in April 1956, USS *Ranger*, commissioned in August 1957 and USS *Independence*, commissioned in January 1959.

The paucity of finance and resources was thus a major factor in the carrier innovations that were developed by the Royal Navy between 1945-1955. With its existing carriers unable to operate the next generation of aircraft, and unable to afford new larger carriers, the Royal Navy had no alternative but to modernise its existing carriers.

The innovations that were developed to meet these difficulties - the angled deck, the steam catapult and the mirror landing aid - were ingenious solutions that had a profound and enduring influence on the design of aircraft carriers for many years. However, in retrospect, the extensive modernization of such carriers proved to be something of a false economy for the Royal Navy. The major rebuilding of carriers to allow them to operate modern aircraft was both expensive and a relatively short-term solution compared to the cost and time taken to build an entirely new carrier. The first *Forrestal*-class carrier built by the USN, for example, was approved by the Secretary of Defence in July 1950 and commissioned in October 1955 - a little over five years. The other *Forrestal*-class carriers - *Saratoga, Ranger* and *Independence* - were even quicker. The modernization of the Royal Navy's *Victorious* fleet carrier, however, took nearly eight years from when it was first taken in hand for major modernization in March 1950 until it was recommissioned in January 1958. Moreover, all the *Forrestal*-class carriers remained in active service for approximately forty years.[8] The modernised *Victorious,* on the other hand, was withdrawn from service in November 1967, having seen active service for less than ten years.[9]

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8. Forrestal: commissioned October 1955; decommissioned September 1993
   Saratoga: commissioned April 1956; decommissioned August 1994
   Ranger: commissioned August 1957; decommissioned July 1993
   Independence: commissioned January 1959; Active
9. Hobbs, Aircraft Carriers of the Royal and Commonwealth Navies, 195-200.

## *The Role of the Carrier in Nuclear Warfare*

A key feature of the early postwar years was the debate that took place within the British and American political and defence establishments over the precise role aircraft carriers would play in a future war. Throughout this period, both the British and American naval leadership struggled to secure a role, not only for their carriers, but also for the navy as a whole, within this vision of the future.

Many commentators anticipated that in future, wars be short, intense and above all, nuclear. Following the dropping of the first atomic bomb in 1945, both navies faced sustained and mounting opposition from those critics who questioned the need for navies at all in the atomic age. During the early stages of the debate, criticism focused on the apparent vulnerability of the carrier which, in theory, could be wiped out by a single atomic bomb. However, as tests such as those at Bikini Atoll in July 1946 put paid to this analysis, discussion on the likely impact of atomic weapons in warfare became more rational and accusations of aircraft carrier vulnerability became less and less tenable.

Critics of the navy therefore rounded on the assumed intention behind the carrier aviation programmes of both navies, who they accused of trying to usurp the functions of the air forces and take over control of strategic air warfare. The air establishments in both Britain and America, together with their political supporters, attacked the emphasis on the aircraft carrier in the postwar fleet and the development of high performance attack and strike aircraft as a deliberate attempt to encroach upon their traditional roles and missions, including responsibility for future nuclear operations.

The debate about the role aircraft carriers would play in a future war, particularly in strategic air warfare, persisted throughout this period. What was significant about this debate, however, was not only that the British and American navies were finally able to secure a role for themselves in a future war, but also that each navy ultimately did so by advocating and justifying its role in very different terms.

The US Navy, for example, successfully defended its role in a future war by promoting the nuclear capabilities that already existed in the fleet. By the mid-1950s, for example, the USN had in service both nuclear-capable aircraft (the AJ-1 Savage) and a new class of carrier (USS *Forrestal*) from which to operate them. Although the USN was not aiming to usurp the functions of the Air Force in strategic nuclear warfare, the availability of these carriers and aircraft did allow the USN to champion its role in forward, offensive operations against the Soviet landmass, in line with the maritime strategy that they had been developing since 1946. Indeed, they were the key to the USN's success in 1954 in lobbying for, and securing agreement to, the inclusion of the aircraft carrier in strategic nuclear attack planning.[10]

Even after the advent of the H-bomb rekindled opposition from those who believed there was no role for navies in the now thermonuclear age, the USN was again able to successfully defend its role in future nuclear missions by appealing to its growing nuclear delivery capability. In April 1956, this capability had been augmented by the addition of the second *Forrestal*-class carrier, USS *Saratoga*, to the fleet. Moreover, the contracts for two more carriers of this class, USS *Ranger* and USS *Independence*, had been awarded in 1954, eventually joining the fleet in 1957 and 1959 respectively.

In contrast, the role of the Royal Navy's carriers in a nuclear strategy remained only theoretical during this period. The Royal Navy certainly aspired to develop a nuclear capability; the ordering of the NA 39 Buccaneer in January 1955 and the extensive modifications to the fleet carriers *Ark Royal* and *Eagle* to enable them to operate such an aircraft are testimony to this. However, the Buccaneer did not join the fleet until July 1962 and the navy's bid for a role in a future nuclear war based on its strategic capabilities failed to convince its opponents.

In 1952 the Royal Navy was successful in lobbying for the inclusion in the Global Strategy paper of the concept of an indefinite period of 'broken-backed' hostilities after

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10. Rosenberg, 'Postwar Air Doctrine', 268; Friedman, *US Aircraft Carriers*, 22.

the initial opening phase of a nuclear war. According to the Admiralty, the most intensive theatre during this stage would be at sea, where the navy's carriers would play a vital role in maintaining sea communications. However, the Royal Navy's critics - especially the Royal Air Force - remained unconvinced of the strategic need for carriers, either during this phase or at any other stage of a future war. There was still considerable confusion, for instance, over the role of the fleet carrier in a war, particularly in the NATO Atlantic Strike Fleet which many in politico-defence circles assumed was to be used for strategic strikes against shore targets. The Admiralty's counter-arguments - that the Strike Fleet was complementary to, and not in competition with, shore-based strategic air forces - failed to assuage the RAF's residual anxieties over the Royal Navy's ambitions.

The debate surrounding the Royal Navy's role in a future war - nuclear or otherwise - thus focused on a much more fundamental question: was there a need for carriers *at all* in a war, especially fleet carriers? Having failed to convince their opponents of the strategic need for carriers, the Royal Navy was obliged to find an alternative argument to defend the need for, and role of, its carriers in war. Ultimately, they were only able to secure a future role for their carriers by switching tactics and focusing on the *political* rather than the *strategic* necessity of maintaining a carrier fleet.

The basis of the Admiralty's argument was that Britain's carriers, particularly the two fleet carriers that had been committed to the NATO Strike Fleet, were vital in granting Britain a voice in the planning of Western operations. They were also essential on strategic grounds. Until the American element of the Strike Fleet could reach the Eastern Atlantic, which was not likely to be before D+15 days, the Royal Navy's carriers would be the only ones available to SACLANT to support SACEUR's plans for the defence of Western Europe. However, their real importance, argued the Admiralty, lay in the disproportionately greater influence in planning that they afforded Britain.

It was this argument, premised on the political requirement to maintain a carrier force, rather than their strategic function, that struck a chord with the Royal Navy's

detractors at this time. It appealed to the intrinsic reluctance by the defence establishment to hand over ultimately responsibility for the defence of British interests to any other nation. Indeed, it was this reasoning that had informed the Admiralty's first postwar plans for the navy in 1945-1946. In postulating a large postwar fleet, with a wartime strength that included nine fleet carriers, twenty-three light fleet carriers and 1,300 front-line aircraft, the Admiralty argued that the navy should not be wholly dependent upon the United States Navy for assistance in defending the Empire's communications and thus British naval strength must be on an absolute basis, equal to its tasks and 'in no way related to that of America.'[11]

Economic pressures had subsequently forced a drastic revision downwards in the size and shape of Britain's armed forces and encouraged a greater reliance on the United States for material assistance in a future war, culminating in the establishment of NATO in 1949. Nonetheless, concern over conceding to America much of the responsibility for the planning and execution of future operations lingered in the minds of many British military and political chiefs at this time. There was the matter of British prestige and influence to consider, particularly following the upset over the allocation of NATO commands. Thus, the Admiralty argued, '...we cannot leave to one Ally complete responsibility for offensive naval warfare.'[12]

This argument ultimately quelled the debate on the function and value of the Royal Navy's carriers. The British government accepted that maintaining a carrier fleet, complemented with the right type of aircraft, were essential if Britain was to undertake a role in NATO. Moreover, they were a small price to pay to ensure Britain had a say in the employment of the Strike Fleet.

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11. 'The Postwar Navy and the Policy Governing its Composition', Paper B424, 29 May 1945, ADM 167/124; 'Composition of the Postwar Navy', Paper B435, 12 September 1945, ADM 167/124; 'A Balanced Postwar Fleet', April 1945, ADM 205/64; DO (46) 97 'Size of the Navy', 26 July 1946, CAB 131/3.
12. 'The Role of Aircraft Carriers', 9 November 1953, ADM 1/24695.

## II. Anglo-American Strategic Cooperation, 1945-1955

Many studies have been made of the so-called 'special relationship' between Britain and the United States in the post-1945 period. Ever since Winston Churchill first championed the existence of a 'special relationship between the British Commonwealth and Empire and the United States' in a speech at Fulton, Missouri in March 1946, historians have sought to understand the nature of the postwar Anglo-American relationship, to analyse its primary motivation and distil its very essence.[13]

However, the majority of these studies focus on the political, diplomatic or economic dimensions of the Anglo-American special relationship. Often this has been in an effort to understand the waning of Britain as a major world power and the apparently simultaneous assumption of great power status by the United States. The nature of the Anglo-American relationship in defence during the postwar period has been analysed less frequently; when it has, it is often couched in terms of the NATO alliance and very few historians have attempted to analyze the defence aspect of the special relationship outside of these parameters.[14]

This thesis has sought to redress the balance by examining the nature of the defence relationship enjoyed exclusively by Britain and America, particularly in the naval sphere. The first key finding as a result of adopting this approach has been that while Anglo-American strategic cooperation at the level of *central* government was often cool and remote, the same cannot be said of the relationship that existed between the British and American military establishments. Here, relations were generally close, becoming even more congenial as this period progressed. However, out of political necessity, the true

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13. See for example Louis and Bull, *Anglo-American Relations Since 1945*; Edmonds, *Setting the Mould* and Bartlett, *'The Special Relationship'*.

14. Notable exceptions are Baylis, 'The Anglo-American Relationship in Defence', in Baylis (ed.), *British Defence Policy* and Grove and Till, 'Anglo-American Strategy in the Era of Massive Retaliation', in Hattendorf and Jordan (eds.), *Maritime Strategy and the Balance of Power*.

extent of Anglo-American strategic cooperation remained obscured from the public view. During the late 1940s, for instance, the Truman Administration in the United States was anxious to avoid being seen as 'ganging up' on the Soviet Union by acting bilaterally with the British. Similarly, Britain was keen to avoid arousing the political sensitivities of her European neighbours - particularly France - by appearing to have some sort of reciprocal defence arrangement with the Americans.

Nonetheless, behind the scenes, the British and American defence establishments continued to enjoy a more 'intimate' strategic relationship with each other than they did with any other ally. Even the establishment of NATO, which officially recast Anglo-American relations in a more formal and inclusive mould, failed to quell this relationship.

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Having established the existence of a exclusive Anglo-American relationship in defence during this period, one that was distinct from the broader NATO alliance, a second key finding has emerged. While many studies focus on Anglo-American strategic cooperation at the highest official levels - particularly between the two governments and their political leaders - many of the practical and enduring facets of cooperation occurred at a much lower level of government. As this thesis clearly demonstrates, Anglo-American strategic cooperation operated on a number of different levels: from the highest echelons of government to lowest levels of officialdom.

When considering Anglo-American strategic cooperation during this period it is important to recognize that much of the exchange of ideas, concepts, procedures and practices - in fact, everything that can possibly be construed as 'cooperation' in its most functional and broadest sense - took place at a much lower level in the defence establishment hierarchy. While military leaders from the respective Chiefs of Staff committees were drawing up joint war plans and discussing options for the deployment

of their forces, much of the real and substantive collaborative work was taking place at a lower strata.

Indeed, one cannot credibly discuss Anglo-American strategic cooperation in the first postwar decade without giving full recognition to the multi-faceted nature of that cooperation. The collaboration that took place between the various navy departments in achieving unprecedented standardisation between the two navies and the joint technical efforts that were made in the development and modernization of carrier aviation are as important to our understanding of the Anglo-American defence relationship as any of the high-level cooperative efforts undertaken by the two governments.

The strength and significance of this local cooperation should not be underestimated. It was often the personal, individual experience of cooperation - which for many stemmed from the experience of fighting together during the Second World War - that was responsible for the gradual fostering of an ever greater degree of institutional cooperation between the Royal and United States navies in the postwar period.

It is only when one examines what was happening at a working, rather than a political, level that the true extent of Anglo-American strategic cooperation is revealed. The degree to which the British and American navies, especially their carriers, operated together in the Korean War and the technical and financial collaboration between the two navies in the development of such carrier innovations as the angled deck and steam catapult are excellent examples of this cooperation.

During the Korean War, there was a high degree of collaboration between the British and American navies. There was a regular exchange of ships and personnel between the two navies and, despite the inferior performance and capabilities of the British ships and aircraft, the carriers of both fleets experienced no major difficulties working together. In fact, the Korean War both exemplified and provided for a new level of Anglo-American strategic cooperation. At the start of the Korean War, some American military leaders felt that the only contribution Britain could make to the

conflict would be a symbolic one, only important for its effect on public opinion. However, by the end of the war, Britain was recognised to be an indispensable ally whose carriers had formed an essential part of the United Nations forces.

Similarly, the history of the development of such carrier innovations as the angled deck, the steam catapult and the mirror landing aid reveals the consonance achieved in technical and research and development programmes between the British and American navies during the postwar period. Without extensive modernization of their carrier fleets, both navies risked a serious loss of operational compatibility between the new generation of naval aircraft beginning to enter service and their existing carriers which were too expensive to replace. Whilst the innovations were of British origin, the United States Navy worked with the Royal Navy - technically, financially and with moral support - to help 'restore the balance' between the ships and their aircraft. In doing so, these innovations also ensured that the two navies would be able to fight together in war and, if necessary, operate aircraft from each others carriers.

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While the strength of Anglo-American defence cooperation should not be underestimated, neither should it be overestimated. It is important to recognise that the Anglo-American naval relationship was not without its detractors; nor was it always based on a sense of equality or even mutual respect. This was particularly true of the early postwar years. Despite having fought alongside each other in the Second World War - and perhaps even because of this experience - many Americans harboured a clear sense of superiority in the policy, methods, tactics and expertise of the USN. This view, which emanated from the highest 'political' level and filtered down to the operational level, contributed towards the creation of a perceptible 'pecking order' or hierarchy in their relations with the Royal Navy. Much of the USN's attitude stemmed from an almost systemic belief that, not only did the British have little significant or worthwhile

to contribute to modern naval warfare, but also that the United States possessed innately superior defence and research and development capabilities. As a result, the USN felt it did not need to depend on, or call for, outside help.

Given Britain's poor economic position during much of this period, it is of little surprise that the Americans should have entertained this view of their principal ally in defence. If the Royal Navy was not yet a spent force, it certainly was a much reduced force in terms of equipment and capabilities compared to the United States Navy. By 1948, successive defence cuts and economic crises had led to an almost inescapable reality: that 'the United Kingdom could not contemplate embarking single-handed on a war against the Soviet Union' and that 'the United States, should realise that such a war would be primarily a United States undertaking.' The role of Britain, in contrast, would be as a 'subsidiary.'[15] Thus it was that five years after the end of the Second World War, the Royal Navy's contribution to the UN forces fighting in the Korean War was greeted with much scepticism by the Americans.

This attitude towards Britain and her navy - one of impatient tolerance and grudging acceptance - remained constant for much of this period. While it is undeniable that Britain did enjoy a special status and influence with the United States in strategic planning vis-á-vis the other western allies, the sense of superiority of American procedure and practice persisted until the Royal Navy was able to demonstrate that it did in fact have a significant and valuable contribution to make to modern naval warfare.This is one aspect of the significance and importance of the angled deck, the steam catapult and the mirror landing aid that has been overlooked by historians. The contribution of the Royal Navy's carriers in the Korean War can also be credited with affecting a shift in USN attitudes towards the British navy. The cumulative effect of these factors was to effect a radical change in the attitude of the United States Navy towards the Royal Navy and in the nature of Anglo-American strategic cooperation generally.

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15. Remarks by Foreign Secretary Ernest Bevin, DO (48) 13th Meeting, 27 July 1948, CAB 131/5.

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By the end of the period under discussion, both the United States Navy and the Royal Navy were entering a new epoch in their history. In the wake of the strategic reorientation following the development of nuclear weapons, both navies had successfully confronted the challenge to their continued role in defence policy by refashioning and then remarketing their strategic utility in national and allied defence policy. While traditional sea control duties, such as gaining and maintaining control of the seas, remained the chief *raison d'etre* for both the USN and RN, their role in strategic strike missions, using both atomic and conventional weapons, was also established as a viable function of modern naval forces.

At the centre of this revitalised naval role was the aircraft carrier. Having been written off as irrelevant in the immediate postwar years by critics who questioned the need for such large ships, or navies at all, in the atomic age, the carrier was firmly reestablished as the backbone of the fleet by 1955. Figure 8.1 shows the extent to which the active carrier strength in Britain and the United States had been allowed to run down in the five years following the end of World War II. By 1951, however, the carrier fleets in both navies had begun to rejuvenate. Although the *size* of the British and American carrier fleets never again approximated the numbers that existed at the end of 1945, this was not an accurate indication of their true potential. Far more significant was that the *shape* of the carrier fleets, and the kinds of roles and missions they were intended to undertake, were radically different and substantially enhanced compared to the early postwar period.

By 1955, for instance, the postwar modernization and construction programmes undertaken by the USN and RN had gradually equipped both navies with fleet carriers which, though few in number, were designed to fulfil a variety of tasks which could not have been envisaged less than a decade earlier. In the United States, the 'super-carrier' USS *Forrestal*, designed to carry the latest strategic strike aircraft weighing up to 70,000lbs, joined the fleet in October 1955. A further three ships of this class were also

under construction at this time, eventually joining the fleet in 1956, 1957 and 1959. In Britain, the much modified fleet carrier, HMS *Ark Royal*, was added to the fleet. Together with the fleet carrier HMS *Eagle*, these carriers were capable of operating all existing and near-term modern aircraft. Also under construction was the revised design HMS *Hermes* light fleet carrier and the extensively rebuilt fleet carrier, HMS *Victorious,* which together would enable the RN to operate the next generation of naval aircraft expected in service by the 1960s, including the long-range nuclear strike Buccaneer aircraft.

***Fig. 8.1 Royal Navy & United States Navy Active Carrier Strength, 1945-1955***

**USN**

| | **1945** | **1946** | **1947** | **1948** | **1949** | **1950** | **1951** | **1952** | **1953** | **1954** | **1955** |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **CVA /CVL** | 27 | 15 | 14 | 13 | 11 | 11 | 17 | 19 | 19 | 16 | 16 |
| **CVE/ CVS** | 71 | 10 | 9 | 8 | 8 | 4 | 10 | 10 | 10 | 11 | 8 |
| **Total** | 98 | 25 | 23 | 21 | 19 | 15 | 27 | 29 | 29 | 27 | 24 |

Source: *Carrier Force Levels 1946-55,* NAHB, Carriers General File.

**RN**

| | **1945** | **1946** | **1947** | **1948** | **1949** | **1950** | **1951** | **1952** | **1953** | **1954** | **1955** |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **CV** | 6 | 12 | 12 | 12 | 3 | 1 | 2 | 2 | 2 | 1 | 2 |
| **CVL/ CVE** | 36 | 13 | 12 | 7 | 4 | 4 | 4 | 3 | 3 | 2 | 2 |
| **Total** | 42 | 25 | 24 | 19 | 7 | 5 | 6 | 5 | 5 | 3 | 4 |

Source: Friedman, *Postwar Naval Revolution*; Watson, *The Changing Face of the World's Navies. 1945 to the Present*

By the end of the first postwar decade, these carriers - and the aircraft intended to operate from them - allowed both the United States Navy and Royal Navy to justify an expanded role for themselves in a future nuclear war, including attacking at source the threat posed by the Soviet Union to the West's control of the sea. Targets included the land bases and ports from which Soviet aircraft and submarines came. The carrier's mobility would permit its aircraft to attack a variety of fixed, moving, seaborne, airborne and ground targets, using both conventional and nuclear weapons. Thus, it was envisaged that the USN's carriers would attack Soviet submarines, surface and air forces and bases in the Baltic, Norwegian, Barents and White Sea areas, while in the Mediterranean, the carriers - working in support of SACEUR's land operations - would undertake atomic strikes against Soviet installations and supply lines in and around the Black Sea.[16]

In the short term, the Royal Navy planned that its two fleet carriers would participate in the NATO Strike Fleet, providing the essential covering force in the Atlantic before the USN's carriers could be deployed. In contrast to the USN, the RN did not have the capability in 1955 to undertake strategic strike missions against land targets using nuclear weapons. In the long term, however, this was a role that they aspired to. Once in service, the Buccaneer would provide the RN with this capacity, even if this particular capability of the aircraft was downplayed by the RN out of the political necessity to avoid antagonising the RAF. The Admiralty therefore promoted its carriers as an infinitely flexible force, whose role was not confined to attack-at-source missions and could also be used to protect shipping, support ground forces and provide air defence.[17] Moreover, they would afford Britain a vital voice in theplanning of western operations.

Although both the United States Navy and Royal Navy were largely successful in establishing a role for themselves in a future war which many expected would be short

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16. 'Responsibilities of US Navy in NATO Air Atomic Mission (classified version)' 18 February 1955, Folder A16-10, SPD, Box 319.
17. 'The Role of Covering Forces'. 19 August 1954; Notes on Swinton Report, 23 August 1954, ADM 205/97.

and nuclear, by the end of the period under examination, doubts had begun to resurface within both navies about the precise form future warfare would take. Despite having argued consistently throughout the first postwar decade for the inclusion of their carriers in national and allied strategic plans to fight a *nuclear* war, neither the USN nor the RN had relinquished its belief that a future war may, in fact, be fought along *conventional* lines and without the use of nuclear weapons. Indeed, this assumption was reflected in the very earliest defence plans drawn up by both the USN and RN and in the general arguments used by both navies between 1945-1955 to defend the strategic utility of their carrier fleets. Thus, the argument that carriers were, *inter alia*, essential to gaining and maintaining control of the seas, protecting shipping, destroying enemy ships at sea and supporting ground forces, was made repeatedly - if not always heard by the politico-defence establishment - during this period.

By 1955, the development of the thermonuclear weapons had only served to bolster and revitalise such arguments. There was no evidence, for instance, that the use of the H-bomb in a war would be anymore decisive than atomic weapons had been expected to be. It was possible that a future war may not be nuclear at all, or on the major scale generally envisaged. Indeed, if anything, the development of thermonuclear weapons and the growth of the Soviet Union's nuclear arsenal made the likelihood of either side launching a major war even less remote. The potency of the West's strategic forces to deter war, for example, had now been seriously undermined.

By the end of this period, therefore, the concept of limited wars - in which the Soviet Union would attempt to achieve its aims and objectives by initiating a series of small-scale conflicts or confrontations around the peripheries of Europe and Asia - gained increasing currency in both the British and American defence establishments. Anglo-American defence policy would have to become more flexible in response, since launching a nuclear offensive would not be appropriate in all circumstances. As a result, policing or peacekeeping tasks assumed a new importance in postwar defence policy.

The concept of limited war 'East of Suez' was not entirely new to Anglo-American

defence planning; both the 1952 Global Strategy Paper and NSC-68 emphasised the need to meet commitments outside the main strategic areas, while the outbreak of the Korean War had only served to highlight this necessity. Moreover, Britain still maintained a number of Commonwealth or Empire interests around the globe.

Nonetheless, as the Royal and United States navies entered the second postwar decade, they faced a new challenge: to establish the concept of limited war and peacekeeping more firmly within national and allied strategic thinking. Even more importantly, they would have to simultaneously persuade defence policy-makers of the vital role to be played by carriers within the limited war/ peacekeeping concept, while at the same time continuing to defend their case for developing the nuclear capabilities that they had spent the first postwar decade fighting for. The 1956 Suez Crisis, the British Defence White Paper in 1957, and the United States involvement in IndoChina (Vietnam) and the Chinese offshore islands crisis in 1958 mark the key transition points towards this goal and the next chapter in the history of the development of carrier aviation in western strategy.

## BRITAIN

| Aircraft | Specification/ Designation & date issued | Type | Crew | Dimensions: Length (L) Wingspan (W) Height (H) | Weight: Empty (E) Loaded (L) | Speed (max) | Range (nm/knots) | In Service |
|---|---|---|---|---|---|---|---|---|
| Supermarine Attacker# | | jet fighter | 1 | L: 37ft 6in<br>W: 36ft 11in<br>H: 9ft 6.5in | E: 8,426 lb<br>L: 12,211 lb | 520 knots | 1035/309 (with external fuel) | August 1951 |
| Blackburn Buccaneer*f* | NA.39 (June 1952) | jet low-level strike | 2 | L: 63ft 5in<br>W: 42ft 4in<br>H: 16ft 6 in | E: 42,000 lb<br>L: 62,000 lb | 691 knots | 1500/- | July 1962 |
| Blackburn Firebrand* | (1939) | torpedo strike fighter | 1 | L: 38ft 9in<br>W: 51ft 3in<br>H: 15ft 3.5in | E: 11,425 lb<br>L: 16,700 lb | 380 knots | 580/173 | September 1945 |
| Fairey Firefly V¶ | | single-engine fighter & ASW | 2 | L: 38ft 0in<br>W: 41ft 0in<br>H: 13ft 11 in | E: 9,859 lb<br>L: 15,600 lb | 316 knots | 1070/- | January 1948 |
| Fairey Gannet± | GR.17/45 (October 1945) | single-engine ASW & AEW variants | 3 | L: 44ft 6in<br>W: 54ft 4in<br>H: 13ft 9in | E: 15,069 lb<br>L: 19,600 lb | 270 knots | 576/- (ASW)<br>609/- (AEW) | January 1955 |
| Supermarine Scimitarπ | N.113 | jet fighter & strike | 1 | L: 55ft 3in<br>W:37ft 2in<br>H: 17ft 4in | E: 23,962 lb<br>L: 34,200 lb | 640 knots (at sea level) | 1422/- | June 1958 |

| Aircraft | Specification/ Designation & date issued | Type | Crew | Dimensions: Length (L) Wingspan (W) Height (H) | Weight: Empty (E) Loaded (L) | Speed (max) | Range (nm/knots) | In Service |
|---|---|---|---|---|---|---|---|---|
| Hawker Sea Furyø | (1944) | fighter-bomber | 1 | L: 34ft 3in<br>W: 38ft 5 in<br>H: 15ft | E: 9,041 lb<br>L: 11,820 lb | 378 knots (high altitude) | 695/250 | August 1947 |
| Hawker Sea Hawk√ | N.7/46 (1945) | jet fighter-bomber | 1 | L: 39ft 8in<br>W: 39ft 0in<br>H: 8ft 8in | E: 9,278 lb<br>L: 16,153 lb | 510 knots (high altitude) | 417/- (687 with 2 90-gallon tanks) | March 1953 |
| de Havilland Sea Hornetß | | fighter | 1 | L: 36ft 8in<br>W: 45ft 0in<br>H: 13ft 6in | E: 11,700 lb<br>L: 15,682 lb | 400 knots (high altitude) | 1000/231 | 1945 |
| Short Seamew+ | NA.32 (1951) | ASW | 2 | L: 41ft 0in<br>W: 55ft 0in<br>H: | E:<br>L: 15,000 lb | 200 knots | | cancelled 1957 |
| de Havilland Sea Vampire¢ | | jet fighter | 1 | L: 30ft 9in<br>W: 38ft 0in<br>H: | E:<br>L: 12,660 lb | 500 knots | | 1948 |
| de Havilland Sea Venom‡ | N.107 | jet night & all-weather fighter | 2 | L: 36ft 7in<br>W: 42ft 11in<br>H: 8ft 6.25in | E: 10,853 lb<br>L: 15,800 lb | 500 knots (low altitude) | 613/- | 1954 |
| de Havilland Sea Vixen | DH.110 (1946) | jet night & all-weather fighter | 2 | L: 55ft 7in<br>W: 51ft 0in<br>H: 10ft 9in | E: 31,715 lb<br>L: 41,575 lb | 600 knots (low altitude) | | July 1959 |

| Aircraft | Specification/ Designation & date issued | Type | Crew | Dimensions: Length (L) Wingspan (W) Height (H) | Weight: Empty (E) Loaded (L) | Speed (max) | Range (nm/knots) | In Service |
|---|---|---|---|---|---|---|---|---|
| Douglas Skyraider≠ | AD | single-engine AEW | 3 | L: 39ft 10in<br>W: 50ft 0in<br>H: | E: 11,712 lb<br>L: 24,000 lb | 303 knots | 2070-2680 nm | October 1951 |
| Saunders-Roe SR.177€ | NA.47 (May 1955) | supersonic fighter | 1 | L: 50ft 6in<br>W: 30ft 6in<br>H: | E:<br>L: 28,174 lb | Mach 2.5 | | cancelled April 1957 |
| Supermarine Swift∞ | NA.34 (March 1952) | jet fighter | | L:<br>W:<br>H: | E:<br>L: | | | cancelled 1954 |
| Westland Wyvern | (1946) | turbo-prop ground attack strike | 1 | L: 42ft 3in<br>W: 44ft 0in<br>H: 15ft 6in | E: 15,600 lb<br>L: 24,500 lb | 330 knots | 791/- | May 1953 |

## Notes

# The Attacker, also known as the Jet Spiteful, was an interim jet before the Sea Vampire came into service and the first jet to equip a front-line squadron. Initially cancelled in February 1946 because of handling difficulties, the project was reinstituted in March 1948 due to delays in the development of both the Sea Vampire and the Sea Hawk (details given are for the F1 model).

*f* Experience gained during the Korean War demonstrated to the Admiralty the need for a long-range, low-level strike aircraft, capable of fulfilling both the close air support role and of carrying and delivering the smaller, tactical nuclear weapons that were under development. Cancellation of the new 53,000 ton fleet carrier, CVA 01, in the 1966 Defence Review and the restriction of the Buccaneer to operating from existing fleet carriers, meant that the aircraft was never able to reach its fullest potential as a naval aircraft. After 1969, they were passed to the RAF and were finally retired in 1992 (details given are for the S2 model).

* On its delivery to the Fleet Air Arm at the end of World War II, the Firebrand had already been outclassed by more modern fighters and consequently saw little postwar service. The last Firebrands were retired in 1953 when the Wyvern came into service. A reconnaissance version of the Firebrand was also produced.

¶ The Firefly V was one of a long production-line of piston-engine naval fighters, beginning with the Fulmar in 1940. Its successor, the Firefly I entered service in 1945 and was revised as the multi-platform Firefly V in 1948, capable of fulfilling the fighter-bomber, nightfighter, armed reconnaissance and ASW roles. The Firefly V saw extensive combat in the Korean War. The last two Firefly variants, Marks VI and VII were specialised ASW aircraft, although the Mk VII was only ever used as a trainer. In total, 1,702 Firefly's, of all variants, were delivered to the Royal Navy, the last in March 1956, after which time it was replaced by the Gannet.

± The Gannet was intended to operate from the Royal Navy's smaller carriers and was the FAA's first ASW aircraft capable of meeting both the search and strike roles. Development problems delayed its entry to the fleet until ten years after the specification was first issued. By that time, the development of the helicopter as a viable ASW platform and the lack of space on board carriers for both types, meant that the Gannet was retired early from active service in 1960.

π The Scimitar represented a number of 'firsts' for the FAA: it was the first Royal Navy aircraft with swept-wings; the first Royal Navy aircraft to break the sound barrier and the Navy's first nuclear-capable aircraft. It was replaced in service by the Buccaneer.

ø The Sea Fury developed from the RAF Fury and while the latter cancelled its orders for the Fury at the end of World War II, the Royal Navy continued to develop the navalised variant. Between 1947 and 1954 it was the Navy's standard single-seat fighter and together with the Firefly V, saw extensive service in Korea, including the shooting down of a MIG 15 jet in August 1952. In 1954, the last Sea Fury's were replaced by Sea Hawks (details given are for the FB10 model).

√ Initially designed for the RAF, development of the Sea Hawk was taken on by the FAA following the RAF's decision to await development of the Hawker Hunter jet fighter-bomber. The Sea Hawk was the first jet fighter developed to a naval specification (details given are for the FGA6 model).

ß The Sea Hornet developed from the RAF's Hornet long-range fighter but due to its size could only be operated from the largest carriers and was replaced by the Sea Fury and Sea Venom between 1951-1954.

+ With the Gannet too heavy to operate from the Royal Navy's smaller carriers, the Seamew was intended to be a light ASW aircraft capable of operating from unmodified light fleet carriers and

MAC's. Deliveries of production aircraft began in 1956 but the Seamew did not see operational service and the whole project was cancelled in the 1957 Defence Review.

¢ As a navalised version of the RAF Vampire, the Sea Vampire was the first jet aircraft in the world to land on board a carrier in December 1945 (details are given for the F20 model).

‡ The Sea Venom was a navalised version of the RAF's Venom night fighter and was intended as an interim aircraft before the Sea Vixen entered service (details given are for the FAW22 model).

≠ The Skyraider was a US-built aircraft, supplied under the Mutual Defence Assistance Programme. The development of a British AEW aircraft had been delayed by a lack of scientists and fifty Skyraiders were commissioned in October 1951, retiring when the Gannet came into service in the mid-1950s.

€ The SR.177 was intended to meet the anticipated threat of a Soviet supersonic bomber operating at high altitude. Conceived in 1955, the SR.177 would be the interim aircraft to meet such a threat until a fighter capable of a speed of Mach 2.5 could be produced, probably in the late 1960s. The SR.177 could be operated from all existing fleet carriers and capable of Mach 2.5 for short periods. It would be able to reach 80,000ft and carry two Blue Jay air-to-air missiles. The SR.177 was cancelled following the 1957 Defence Review on the grounds that long-range guided missiles would be better able to fulfil the SR.177's intended mission.

∞ In March 1952, the Admiralty ordered twenty hooked versions of the RAF Swift fighters, both to learn about handling swept-wing fighters and as part of the Korean War defence build-up before the Scimitar was introduced. Due to technical problems, the navalised Swifts were cancelled in 1954.

≈ The Wyvern replaced the Firebrand in 1953 but with the development of jet fighters, saw only five years front-line service.

Source: David Hobbs, *Aircraft of the Royal Navy Since 1945* (Liskeard: Maritime Books, 1993); Norman Friedman, *British Carrier Aviation. The Evolution of the Ships and their Aircraft* (London: Conway Maritime Press, 1988); Tony Holmes, *Jane's Historic Military Aircraft* (London: HarperCollins, 1998).

## UNITED STATES

| Aircraft | Specification/ Designation & date issued | Type | Crew | Dimensions: Length (L) Wingspan (W) Height (H) | Weight: Empty (E) Loaded (L) | Speed (max) | Range (nm/knots) | In Service |
|---|---|---|---|---|---|---|---|---|
| McDonnell Banshee | F2H (March 1945) | twin-engine jet fighter | 1 | L: 40ft 2in<br>W: 44ft 10in<br>H: 14ft 6in | E: 11,146 lb<br>L: 15,640 lb | 532 knots (at 10,000ft) | 1280 nm (with external fuel) | October 1950 |
| Grumman Bearcat# | F8F (1943) | piston-engine fighter | 1 | L: 28ft 3in<br>W: 35ft 10in<br>H: 13ft 10in | E: 7,070 lb<br>L: 12,947 lb | 421 knots (at 19,700ft) | 1105/- (internal fuel) | May 1945 |
| Grumman Cougar*f* | F9F (March 1951) | jet fighter | 1 | L: 41ft 9In<br>W: 34ft 6in<br>H: 12ft 3in | E: 11,866 lb<br>L: 18, 738 lb | 647 knots (at sea level) | 1,200 nm | November 1952 |
| Chance-Vought Cutlass* | F7U (June 1946) | jet fighter | 1 | L: 44ft 3in<br>W: 38ft 8in<br>H: 14ft 7.5in | E: 18,210 lb<br>L: 31,642 lb | 680 knots (at 10,000ft) | 660 nm | March 1950 |
| North American Fury¶ | FJ-1 (January 1945) | jet day fighter | 1 | L: 34ft 5in<br>W: 38ft 2in<br>H: 14ft 10in | E: 8,843 lb<br>L: 15,600 lb | 547 knots (at 9,000ft) | 1,500 nm | 1950 |
| Grumman Guardianø | AF | single-engine search & strike variants (ASW) | 4 (search)<br>3 (strike) | L:43ft 5in<br>W: 60ft 0in<br>H: 16ft 7in | E: 14,658 lb<br>L: 25,500 lb | 317 knots (at 16,000ft) | 990/148 (with external fuel) | October 1950 |
| Grumman Panther√ | F9F (April 1946) | jet fighter-bomber | 1 | L: 35ft 10in<br>W: 38ft 0in<br>H: 12ft 3in | E: 10,147 lb<br>L: 18, 721 lb | 579 knots (at 5,000ft) | 1353 nm (with external fuel) | May 1949 |

| Aircraft | Specification/ Designation & date issued | Type | Crew | Dimensions: Length (L) Wingspan (W) Height (H) | Weight: Empty (E) Loaded (L) | Speed (max) | Range (nm/knots) | In Service |
|---|---|---|---|---|---|---|---|---|
| McDonnell Phantomß | FD (August 1943) | jet all-weather fighter | 2 | L: 38ft 9in<br>W: 40ft 9in<br>H: 14ft 2in | E: 6,683 lb<br>L: 12,035 lb | 479 knots (at sea level) | 770 nm | July 1947 |
| North American Savage+ | AJ (June 1946) | nuclear strike | 3 | L: 63ft<br>W: 75ft 2in<br>H: | E:<br>L: 52,862 lb | 471 knots | | September 1949 |
| Douglas Skyhawk¢ | A4D (June 1952) | jet bomber | 1 | L:<br>W: 27ft 6in<br>H: | E:<br>L: | 650+ knots | 1000+ | October 1956 |
| Douglas Skyknight‡ | F3D (April 1946) | jet all-weather fighter | 2 | L: 45ft 6in<br>W: 50ft 0in<br>H: 16ft 0in | E: 18,160 lb<br>L: 26,850 lb | 600 knots (at 20,000ft) | 1,200 nm | 1951 |
| Douglas Skyraider≠ | AD | attack | 1 | L: 39ft 3 in<br>W:<br>H: | E: 11,712 lb<br>L: 17,818 lb | 303 knots (high altitude) | 1170/197 (with external fuel) | December 1946 |
| Douglas Skyray€ | F4D (December 1948) | jet fighter | 1 | L: 45ft 8.25in<br>W: 33ft 6in<br>H: 13ft 0in | E: 16,024 lb<br>L: 25,000 lb | 695 knots (at 36,000ft) | | April 1956 |
| Douglas Skywarrior∞ | A3D (March 1949) | twin-engine jet attack bomber | 3 | L: 74ft 4in<br>W: 72.5ft<br>H: 22.8ft | E: 35,999 lb<br>L: 59,942 lb | 535 knots (at sea level) | 2070/457 (high altitude) | April 1956 |

| Aircraft | Specification/ Designation & date issued | Type | Crew | Dimensions: Length (L) Wingspan (W) Height (H) | Weight: Empty (E) Loaded (L) | Speed (max) | Range (nm/knots) | In Service |
|---|---|---|---|---|---|---|---|---|
| Grumman Tiger◊ | F11F (April 1953) | jet day fighter | 1 | L: 46ft 11.5in<br>W: 31ft 7.5in<br>H: | E: 13,428 lb<br>L: 22,160 lb | 750 knots | 1,270 nm | March 1957 |
| Grumman Tracker | S2F | ASW | 4 | L: 42ft 3in<br>W: 69ft 8in<br>H: 16ft 3.5in | E: 17,357 lb<br>L: | 287 knots | 900 nm | February 1954 |

## Notes

# The Bearcat was a higher performance version of the F6F Hellcat it replaced. Although smaller and lighter than the Hellcat, its compact design ensured it could operate from the USN's smaller carriers and achieve a higher rate of climb.

*f* The Cougar was the swept-wing successor to the Panther (details given are for the F9F-8, first flown December 1953).

* Details given are for the F7U-3, first flown December 1951.

¶ The Fury was the USN's first operational jet fighter. Only one unit was ever equipped with FJ-1s and it was placed in reserve in 1951. The Fury's successor, the swept-wing FJ-2, was inspired by the appearance of the MIG-15 in Korea and was intended to meet the Navy's requirement for a high-performance day fighter. The FJ-2 first entered service in January 1954.

ø The Guardian was originally conceived as a torpedo-bomber, to replace the Grumman TBF Avenger, but the design was revised to assign it an ASW role. It was produced in two different variants - the AF-2W, which searched for enemy submarines and the AF-2S, which performed the strike mission. It was soon replaced by the S-2 Tracker, which entered service in 1954 (details given are for the strike-version).

√ The Panther was the first carrier-based jet to go into action in Korea and performed over half of all attack missions flown by the USN and Marine Corps (details given are for the F9F-5 model).

ß In July 1946, a prototype of the Phantom was the first US purpose-built jet fighter to take-off and land on board a carrier (USS *Franklin D. Roosevelt*) It was phased out of front-line service in July 1950.

+ The Savage was designed to fulfil the USN's requirement for a high-performance nuclear-strike aircraft and remained in service until February 1960.

¢ Nicknamed the 'Mighty Midget', the Skyhawk was the USN's smallest jet bomber to date, weighing just half of the 30,000 lb gross weight proposed in the specification. At just twenty-seven feet, for example, its wings did not require folding. The Seahawk was intended to provide a front-line nuclear attack capability for the USN's proposed nuclear-powered carrier, USS *Enterprise*, but was in fact capable of carrying a nuclear weapon from all types of carrier.

‡ The Skyknight was conceived in 1946 to operate against the high performance bombers expected in the early 1950s. It was the USN's first jet night fighter and the first jet to destroy another jet - a Yak 15 - in combat, during the Korean War in November 1952 (details given are for the F3D-2 model).

≠ The Skyraider was originally designed to meet the wartime requirement for a high-performance dive bomber/torpedo bomber. It was delivered to late for service in World War II but played a major role in the Korean War. It was produced in a variety of models, including carrying ECM equipment, night attack and tactical nuclear weapons capability.

€ The Skyray was designed to intercept approaching enemy aircraft before they could reach their target and was required to climb to 40,000 feet in less than five minutes. It was a lightweight, tailless, swept-wing aircraft, capable of greater acceleration, climb and ceiling than other contemporary fighters.

∞ The Skywarrior was the world's first carrier-based strategic bomber, replacing the Savage as the USN's contribution to the nuclear deterrence force. BuAer had been developing plans for a bomber to operate

from the very large *Forrestal*-class carriers, then in the planning stage, since 1947. The projected size of nuclear weapons in the early 1950s determined the aircraft's size while the development of jet engines meant the Skywarrior was capable of transcontinental ranges. The Skywarrior retained its nuclear mission into the 1960s when it was replaced by the SSBN force with Polaris missiles.

◊ The Tiger was designed around the concept of a carrier striking force, equipped with fast, powerful aircraft, capable of taking the battle to the enemy's home territory. During trials in September 1956, a Tiger pilot shot himself down after overtaking the shells he had fired seconds earlier. The USN was forced to devise new fighter tactics when flying faster than sound, whereby pilots would turn up or away after firing. The Tiger could carry both air-to-air and air-to-ground missiles.

Source: Gordon Swanborough & Peter M. Bowers, *United States Navy Aircraft Since 1911* (London: Conway Maritime Press, 1990 ed.); Tony Holmes, *Jane's Historic Military Aircraft* (London: HarperCollins, 1998).

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